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Jan 1978 / Volume 44 / No 1

Canadian Dental Association/Association Dentaire Canadienne

In this issue:

The influence of gland size on the flow rate and composition of human parotid saliva

Stomatitis areata migrans

Occlusal examination

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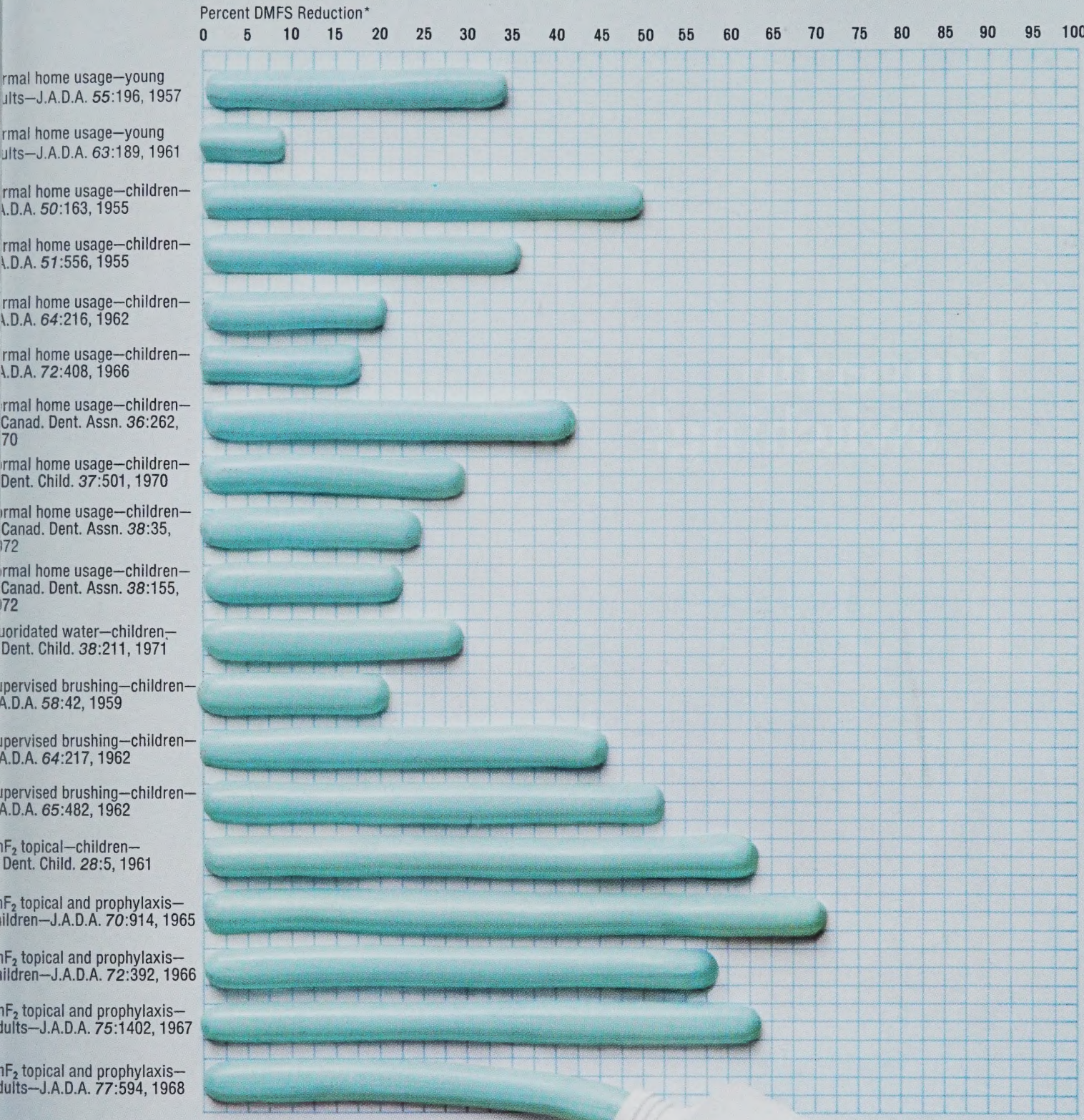

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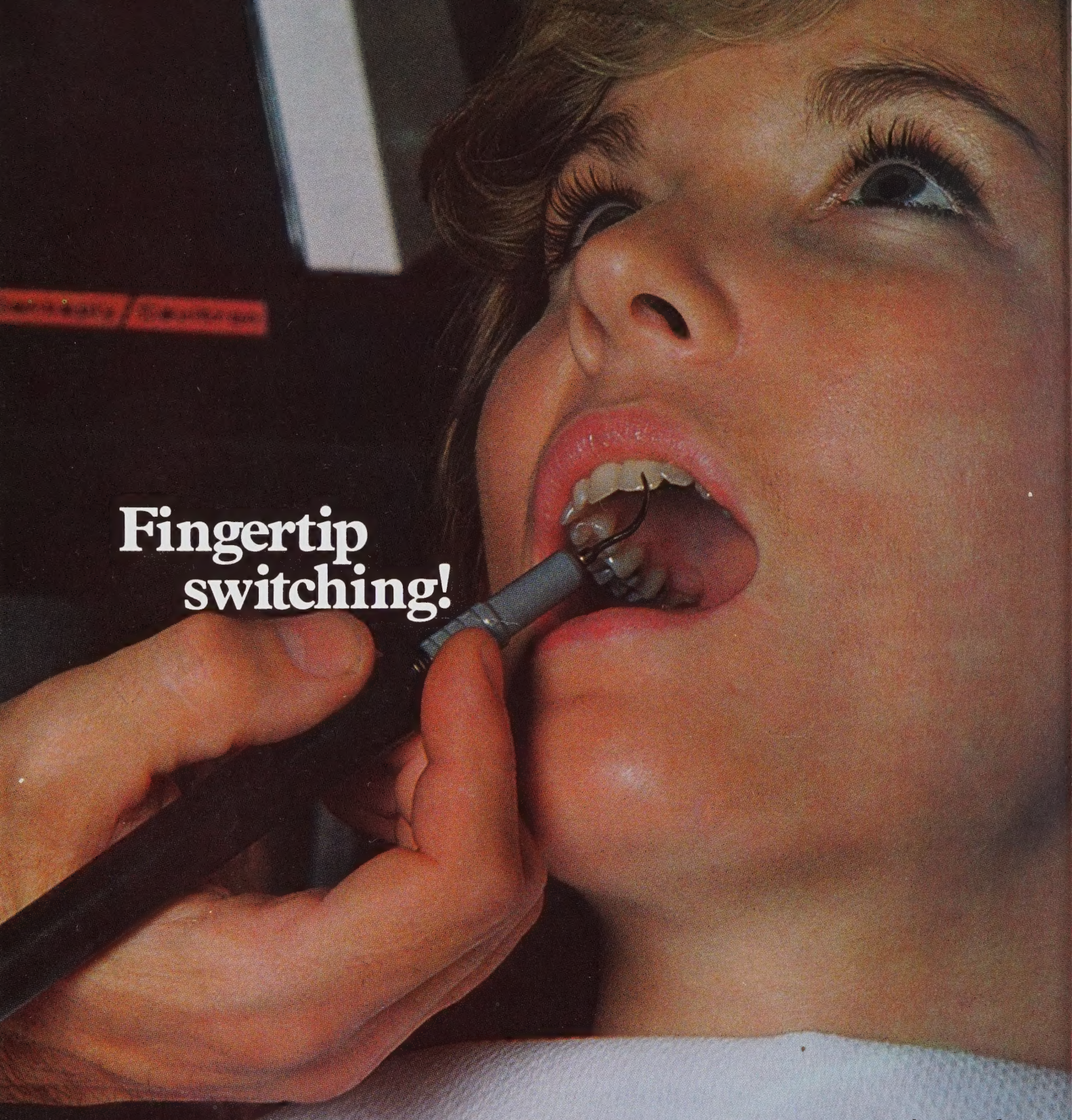

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Jan 1978 / Volume 44 / No 1

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13.

Canadian Meetings

Vernon Ski Seminar, Vernon, British Columbia, March 3-5, 1978. The University of British Columbia will offer a choice of three courses for the dentist during this seminar. Courses deal with endodontics, paedodontics and periodontics. Contact: Continuing Education in the Health Sciences, IRC Room 105, University of British Columbia, Vancouver, B.C. V6T 1W5.

Alpha Omega Dental Fraternity Ladies' 9th Annual Art Show Sale and Auction, Edwards Gardens, Toronto, April 15-16, 1978. Featuring Ken Danby, Glen Loates, A. J. Casson, G. Iskowitz, R. Letendre, N. Morrisseau, etc. Proceeds in aid of Dental Education. For information, contact: Mrs. P. Chapnick (416) 223-5478.

Ontario Dental Association and the Dental Society of the State of New York, Joint Convention, Sheraton Centre, Toronto, May 14-17, 1978. Contact: Mrs. W. C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Les Journées Dentaires du Québec, Quebec Hilton Hotel, Quebec City, May 28-31, 1978. Contact: Dr. R. M. Lang, 5171 Decarie Blvd., Montreal, Quebec H3W 3C2.

Atlantic Provinces Dental Convention, Charlottetown, Prince Edward Island, July 2-5, 1978. Contact: Dr. David O'Connell, 13 Green Leaf Drive, Sherwood, Prince Edward Island.

Pacific Dental Federation Convention, Vancouver, July 23-26, 1978. Contact: Dr. Ken Neuman, President, Pacific Dental Federation, 1125 West 8th Avenue, Vancouver, British Columbia V6H 3N4.

International Meetings

Midwest Society of Periodontology, Hyatt Regency Hotel, Chicago, Illinois, February 4-5, 1978. Contact: David M. Jacobson, Executive Secretary, 1223 East Plate Drive, Palatine, Illinois 60067.

Australian Dental Association, Jubilee Congress, Melbourne, February 12-16, 1978. Contact: Dr. D. Behrend, Honorary Secretary, 1978 Jubilee Dental Congress, P.O. Box 29, Parkville, Victoria 3052, Australia.

Canadian American Medical Dental Association, 18th Annual Session, Vail, Colorado, February 25 - March 4, 1978. Contact: Dr. H. R. Allott, Secretary Treasurer, 550 Osborn Blvd., Sault Ste. Marie, Michigan 49783.

Australian and New Zealand Societies of Periodontology, Combined Meeting, Melbourne, Australia, February 9-10, 1978. Contact: Dr. Lloyd G. O'Brien, 147 Collins St., Melbourne, Victoria 3000, Australia.

Thomas P. Hinman Dental Meeting, sponsored by the Fifth District Dental Society of Georgia, Marriott and Hilton Hotels, Atlanta, Georgia, March 18-22, 1978. Contact: Dr. Ronald E. Goldstein, General Chairman, Hinman Dental Meeting, 615 Peachtree Street, N.E., Suite 915, Atlanta, Georgia 30308. Telephone: (404) 874-9855.

British Society of Periodontology, International Conference on "The treatment of advanced periodontal disease", Europa Hotel, London, England, April 3-4, 1978. Contact: J. S. Zamet, President, British Society of Periodontology, University College Hospital, Dental School, Mortimer Market, London, W.C.I.

American Association of Endodontists, 35th Annual Session, MGM Grand Hotel, Las Vegas, Nevada, April 12-16, 1978. Contact: American Association of Endodontists, P.O. Box 11728, Northside Station, Atlanta, Georgia 30355.

California Dental Association, Scientific Session on "Quality of Life", Anaheim, California, May 5-8, 1978. Contact: Steven Badolato or Geraldine Reeve, California Dental Association, P.O. Box 91258, Los Angeles, California 90009.

Circulo Odontologico Del Sur (Southern Argentina Dental Society), Second International Congress and Third Socio-Economic Congress, Bahia Blanca, Argentina, May 25-28, 1978. International lecturers will deal with all clinical specialties. Contact: Dr. R. L. Ellis, Associate Professor, Department of Community Dentistry, University of Toronto, Faculty of Dentistry, 124 Edward St., Toronto, M5G 1G6.

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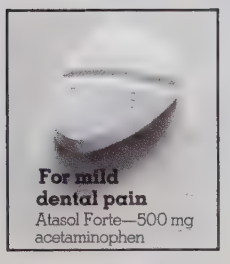

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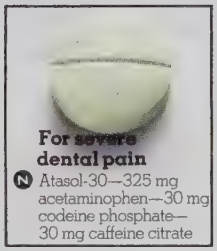

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**It has been reported that acetaminophen potentiates the action of warfarin-type anticoagulants if administered several times daily over a two-week period.

This information is based upon current medical literature. Detailed references are available upon request

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LETTERS TO THE EDITOR

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne representent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.

CDA Insurance Program

The culmination of over two years of effort has provided the dentists of Canada with an incomparable insurance package, namely the CDA National-Provincial Insurance Program.

My new premiums for all insurance plans has saved me more than my combined ODA and CDA membership dues, and even goes a bit towards covering the sizeable increase in our Ontario Dental Licence (RCDS) fees. I am returning some of this windfall profit to dentistry by way of a donation to CFDE.

The gratitude of the profession and individual dentists must be expressed to the ODA and CDA insurance committees, as well as to the CDSPI Board, and especially to Dr. John Durran of Hamilton, Ontario, and Dr. Rod Moran of Toronto, the CDA President-elect.

They have saved the profession a lot of bucks and one can appropriately say "THANKS A MILLION".

Ivan Hrabowsky, DDS
St. Catharines, Ontario

Myfunctional therapy

The Institute for Myofunctional Therapy in Coral Gables, Florida, has been actively advertising a series of videotapes on myofunctional therapy. We have recently reviewed one of these tapes entitled "Myofunctional Therapy in Dental Medicine." In contrast to the Institute's claim of the value of the tape as a teaching aid, we have found the tape to be of no teaching value whatsoever. The content of the tape is far from being a scientific presentation based on visual evidence. The tape was a far too lengthy conversation between the author and patients who were presented as having been successfully treated. At no time did the author clearly present a complete diagnostic evaluation or meaningful treatment sequence.

The black and white tape itself was of inferior quality. Whoever prepared this tape has no concept of videotape production for educational purposes.

We bring this to the attention of your readers with a suggestion that commercial dental educational films or tapes should be reviewed by an appropriate evaluation group sponsored by the CDA. The results of such a peer review procedure should be regularly published in the CDAJ.

Nagi Halhoul, BDS, MScD, PhD
George Riekman, DDS, Dip Pedo
Ken Sutherland, DDS
University of Saskatchewan
Faculty of Dentistry

Impacted third molar

In response to Dr. Keen's letter to the editor concerning the article entitled "The Impacted Third Molar" in the August 1977 Journal of the Canadian Dental Association, it would appear that Dr. Keen is really trying (with some difficulty) to state that before making a decision for or against the removal of an unerupted tooth, that *all* factors be given very careful consideration, as our article implies. We certainly cannot argue against this concept as this is the standard for practice in our office as it is (I am sure) in all oral surgery practices.

Dr. L. Raley
Dr. G. Baker
Dr. P. Chapnick
Toronto, Ontario

P.S. "Yes we still do have our appendices"

I read with considerable chagrin, the letter from M. M. Keen, BDS, which was published in the November 1977 issue of the Journal of the C.D.A., and written in response to an article in the August 1977 issue of the Journal by Drs. Raley, Chapnick and Baker.

Keen's suggestion that unerupted, asymptomatic third molars are to be compared with asymptomatic appendices is ludicrous. He states, "I surmise it fair comment that, statistically, more appendices become 'acute' than unerupted third molars." In the hospital with which I am associated, a six hundred bed hospital serving a community in excess of 100,000 people, 110 appendices were removed during the past 12 months. Assuming a new generation every 20 years, this would indicate that 98% of the population go through life without the need for appendectomy. On the contrary we have found that very few patients live their lifetimes with impacted third molars which remain asymptomatic. Moreover, the later in life that the symptoms occur, the more severe is the disease entity, and the more traumatic

is the surgical intervention. What statistics does Keen have to support his *fair* comment?

It seems entirely logical and indeed desirable, that when we, as dental health professionals, recognize a condition which is relatively easy to correct during early adulthood, we do not postpone that correction until such time as the condition deteriorates and the correction becomes more difficult for all concerned. Would Keen also suggest that orthodontic treatment be postponed until such time as the patient develops periodontal disease or a temperomandibular joint syndrome?

When everyone else seems to be teaching and preaching the value of preventive care, it is distressing to be made aware that there are those in the University community who still subscribe to the no symptoms – no treatment philosophy. It is to be hoped that the views expressed by Keen in his letter are personal and "not to be taken as departmental policy," as the postscript indicated. Why then give some substance to this nonsense by naming the university and department at all?

Could there possibly be another person of any intelligence, let alone a health professional, who would equate, however facetiously, the prophylactic removal of unerupted impacted third molars with routine bilateral mastectomy? May editorial judgment in future protect us from such absurdity.

Robert W. Marshall, DDS
Toronto, Ontario

Myofascial pain

To my great astonishment I repeatedly noticed that your editorial board let a major spelling mistake slip in articles related to *myofascial* pain. Especially recently in articles by or about Dr. R. I. Brooke (JCDA 43 (10) 1977).

As the late Dr. David F. Mitchell of Indiana University Dental School kept pointing out to us, the pain Dr. Brooke is working with does occur in the face but the word myofascial points to pain related to the fascias of muscles, not to the word face.

I would really appreciate it if you would start writing myofascial instead of myofacial in future articles dealing with myofascial pain syndrome.

References: Bonica, J. S.: Management of myofascial pain syndromes in general practice. JAMA 164: 732, 1957.
Schwartz, L. and Chayes, C. M.: Facial pain and mandibular dysfunction. Saunders, 1968.

Monique Michaud, DDS, MSD
Professeur adjoint,
Section de radiologie et diagnostic
Département de stomatologie
Faculté de médecine dentaire
Université de Montréal.

Dr. Michaud's letter was referred to Dr. Brooke who replied as follows:

Dr. Michaud is, of course, absolutely correct. Although in my article on Secondary Osteoarthrosis (Journal Canadian Dental Association, No. 7, 1977, pages 323-328) and in a news release which was sent to you and republished in part (Journal Canadian Dental Association, 43 (10), 1977) the spelling was given correctly as *myofascial,* in both instances the correct spelling was changed by the Journal to the incorrect spelling, leaving out the *s*. Furthermore, I had no chance to correct this misspelling because you do not submit galley proofs to your authors.

Perhaps this is a good time to make the request that galley proofs be delivered to authors. Other mistakes of a similar nature do occur and I know of no other scientific journal which does not allow the author to have a sight of the galley proofs.

May I then add my voice to that of Dr. Michaud in requesting that your Journal start spelling myofascial pain dysfunction syndrome correctly.

R. I. Brooke,
Professor and Chairman,
Department of Oral Medicine,
Faculty of Dentistry,
University of Western Ontario.

Editor's Note: The Journal's printing and production schedule does not allow time for authors to review galley proofs. However, we are looking for ways to improve our publishing schedule.

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1-2 years, as directed by a physician up to a maximum of 0.6 ml 4 times daily
under 1 year, as directed by a physician up to a maximum of 0.3 ml 4 times daily

⊘ ATASOL-8
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8 mg codeine phosphate
30 mg caffeine citrate
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Children: 10-14 years, usual dose, one-half tablet 3 times daily or as directed by a physician up to a maximum of 1 tablet 4 times daily

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HORNER
Montréal, Canada

EDITORIAL

Prevention — The Need For Attitude Change

A dental patient attempting to gain control of his oral health faces a problem not unlike that faced by someone attempting to lose weight.

Many patients have tried unsuccessfully to lose weight and keep it off with gimmicky crash diets, with pills that jangle their nerves or by skipping meals and making themselves miserable.

Not until a serious dieter reaches the stage of weight control based on behaviour change or attitude change toward food does he cope with weight control over a long period. Similarly a dental patient who is seeking plaque control and good oral hygiene cannot be successful over the long term by crash plaque control programmes or dental hygiene immersion schemes. He will never achieve control of his plaque and dental disease until he has changed his attitude to his oral health.

The dentist's task is to effect an attitude change in his patient that will bring about the desired results for a long period of time. How the dentist goes about changing the patient's attitude and the time limit he sets for his patient to achieve this change will reflect his degree of success.

Dentists, by virtue of their training, are handicapped in assisting a patient with attitude change. The strict course budgets for all Canadian dental schools do not permit the inclusion of even the sketchiest coverage of behavioural concepts. What can the dentist do to make himself more aware of the patient's problems and to understand the patient more fully in order to assist him in attitude change?

First and most important the dentist must want to help his patient in attitude change. This desire to help will be reflected in the dentist's desire to talk with his patient about dental health, which is closely related to the dentist's conviction that good oral health is worthwhile. A dental office loaded with the latest "effective gimmicks" in oral health teaching often signals a dental office that does not have a genuine desire to help the patient in reaching a state of good oral health nor the conviction that good oral health is important.

The techniques to use and instruments required for the patient to maintain good oral hygiene are routine and simple. The complicated part is to understand the patient well enough to effect a lasting attitude change. The understanding of the patient takes time and interest on the part of the dentist. Stereotyped approaches to patients, so common with dentists, will not achieve this goal. Each patient is different, each patient will respond to different stimuli and not all patients will be immediately cooperative and receptive. As the dentist does not find immediate solutions to many of the problems within a dental office that affect the day-to-day routine of operation, he should not expect to be immediately successful in helping all his patients with an attitude change to their oral health. For some patients, several years may be required for success and therefore it should not be unreasonable to expect that the dentist may require several years to develop the knowledge and expertise in understanding and assisting his patients in their attitude change. It is only when one pauses to assess the dental treatment given, can one evaluate how well any programme is working. Often the success of a preventive programme can be evaluated by determining how successful the dentist is with his own oral hygiene and that of his staff.

The young dentist often has the greatest handicap in effecting an attitude change in his patient primarily because he lacks the experience in dealing with patients. He has one great advantage however in his lack of stereotyping of approaches and his open mindedness toward his patients, a quality often missing in the long-standing dental practice.

The very basic requirements in assisting a dental patient to achieve good oral hygiene supported by an attitude change to his oral health is a knowledgeable patient dentist willing to help his patients through a better understanding of their needs and a desire to improve his skills in the behavioural sciences.

W. J. Fleming, BSc, DDS, MScD, FRCD(C),
Chief of Dentistry,
St. Michael's Hospital, Toronto
Assistant Professor, Preventive Dentistry,
Faculty of Dentistry, University of Toronto

Tools of the Trade

Colgate's Special MFP Fluoride provides continuing protection against cavities between check-ups.

The fluoride treatment you give gets our patients off to a good start. But 's important that they brush with an ffective fluoride toothpaste, like Colgate;* o they're fighting cavities between neck-ups too.

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CANADIAN DENTAL ASSOCIATION RECOGNIZED

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Canadian Dental Association.

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Platform guests and officials attending the opening ceremonies at the Harbour Castle Convention Centre, Sunday, October 23. Far right is Dr. M. K. Hine, then president of the FDI, and next to him is Dr. R. Braun, who was installed as the new FDI president during the Congress.

Pipe Major of the 48th Highlanders. The pipes and drums of the Highlanders accented the pageantry of the opening ceremonies.

1977 WORLD DENTAL CONGRESS

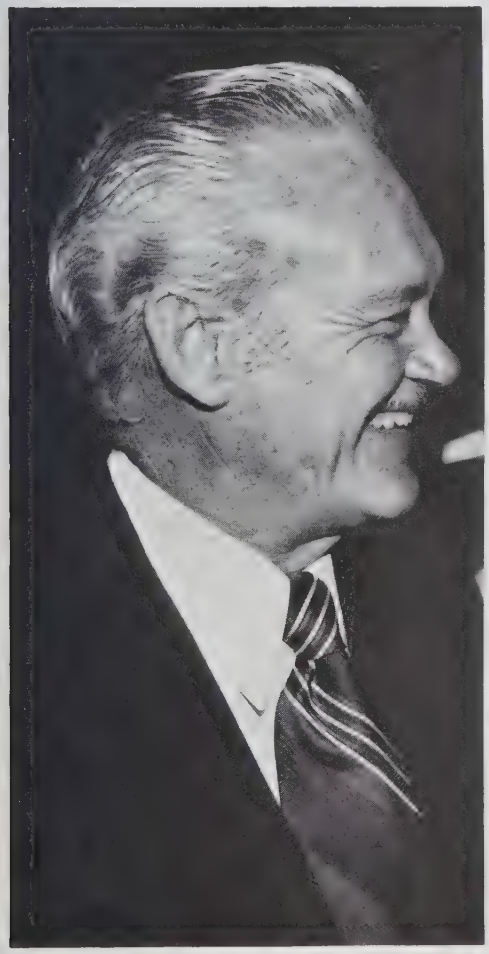
The 65th Annual World Dental Congress of the Fédération Dentaire Internationale was held in Toronto, October 22-28, 1977. This marks the first time the Canadian Dental Association has had the opportunity to host this international event which drew dentists, specialists, educators, auxiliaries and exhibitors from countries around the world.

Dr. Hine escorts Ontario's Lieutenant-Governor Pauline McGibbon to the platform.

Dr. D. L. Rife (right), newly installed president of the Canadian Dental Association, chats with Dr. Frank P. Bowyer, newly installed president of the American Dental Association.

Visitors from Japan (above) enjoy one of the Congress social events and delegates from the Bahamas (below) sit in on one of the scientific sessions.

Dr. W. G. McIntosh, Chairman of the Congress Organizing Committee, enjoys a light moment during the Congress schedule.



Dr. R. Martin (left) assists Dr. P. Morkis in adjusting his jacket. Organizing committee members wore the distinctive red jackets to be readily identifiable to delegates. Dr. Martin was chairman of the reception committee and Dr. Morkis was a member of the registration and housing committee.

Dr. W. D. Heffron, president of the Australian Dental Association.

Following the CDA installation luncheon, October 26, some of the head table guests gathered for this photo: Back row, left to right: Dr. M. J. Cripton, past-president; Dr. R. A. Gray; Dr. G. E. Utas; Dr. H. L. Mussells; Dr. A. J. Shinoff; and Dr. R. L. Moran, president-elect. Second row: Dr. C. Covit and Dr. C. Dexter. Front: Dr. D. L. Rife, CDA president.

THE CANADIAN DENTAL ASSOCIATION REGISTERED RETIREMENT SAVINGS PLAN

The CDA RRSP was established in December 1957, shortly after legislation had been passed to allow deferral of income tax on eligible contributions to a registered retirement savings plan. Within a few years a multitude of plans came into being, and it soon became difficult for someone who wished to benefit from the tax deferral to decide which plan to choose.

Some plans have a front end load built in, some have liquidation fees. In others the participant is obligated to contribute a certain amount at certain times. These plans often contain heavy penalty clauses if payments are missed. Very often they have little or no cash value until the end of the third year.

The philosophy behind the CDA Plan was to circumvent most of these restrictions and make a vehicle available to members of the profession with the following features built in:

1) Flexibility
2) Choice of funds
3) No front end load, no liquidation charge
4) Low administration fees

1) Flexibility means that a participant can make contributions whenever convenient up to the annual maximum allowed. If for some years he prefers not to contribute, this is possible without penalty. Transfers between funds are permitted without charge.

A participant also has the privilege of opting out, converting the value of his account into cash. There is no penalty for such a transaction. However, the cash value is taxable as income in the year it is received.

2) At present the CDA Plan offers a choice of five different funds:

a) Common Stock Fund
b) Fixed Income Fund (bonds and mortgages)
c) Guaranteed Fund
d) Balanced Fund
e) Guaranteed Investment Receipts Fund

A participant can invest in any one of these funds, or he can split his investment between two or all of the funds. As market conditions change, he may change his investment formula.

The ''Balanced Fund'' was specifically introduced for the benefit of the participants who prefer not to keep a constant watch on market trends. The Fund contains equities, bonds and mortgages, and the portfolio manager is responsible for the asset mix.

3) 100 per cent of all contributions are invested. Many plans have front end loads in which a certain percentage of the contributions go toward a commission. Such load can be as high as 9 per cent. Other plans have termination fees built in.

4) In the CDA Plan the only charge against the funds is ½ of 1 per cent per annum. This covers investment services, trusteeship and administration. In many plans the fee amounts to ¾ of 1 per cent or even 1 per cent per annum of the market value of the funds.

The performance of the plan has been watched closely by the Association. Over the years the funds have usually performed better than average when compared with other similar funds. As market conditions change, introduction of new funds or closing out of existing funds may be advantageous. The CDA will continue to review the plan options in order to assure that the plan will always reflect the needs of our participants.

We urge all members of the Association to familiarize themselves with the CDA Plan, but it is not our intent to put pressure on anyone to join.

The Plan simply constitutes a viable alternative to the confusing mosaic of vehicles available, and the advantages outlined in this article may be well worth considering.

CDA Interim Council on Insurance

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on November 30, 1977:

Common Stock Fund	$28.263
Fixed Income Fund	$20.371
Guaranteed Fund	$14.157

Total assets (market value) of the plan were $26,037,138.67.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

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DALHOUSIE PLANS MAJOR PROGRAM IN CONTINUING DENTAL EDUCATION

Dental practitioners and teachers across Canada and the northeast United States should mark their calendars for a major program in continuing dental education slated for Dalhousie University, Halifax, in February.

The program focus will be on prosthodontics with the Lorne E. MacLachlan Removable Prosthodontics Teaching Conference scheduled for February 23-24, to be followed by a continuing education course for practitioners entitled "Removable Prosthodontics Canada, 1978", February 25-26.

The meetings represent a "first" with faculty from all ten Canadian dental schools included on the roster. Among the clinicians and discussion leaders taking part will be: Drs. George Zarb, University of Toronto; Paul Sills, University of Western Ontario; Normand Tardiff, Université Laval; Trevor Harrop, University of British Columbia; Brock Love, University of Manitoba; Nasser, Dibai, McGill University; Norman Brien and Allain Vaillancourt, Université de Montréal; S. A. Chaney, University of Saskatchewan; Allan Fee, University of Alberta; Oskar Sykora, Art Ervin, Bruce Graham, and Doug Chaytor, Dalhousie University.

The teaching conference will provide an opportunity for Canadian teachers of prosthodontics to share information on the content and presentation of their programs, the problems they encounter and how they cope with them. It is hoped that the participants will be helpful to each other in terms of immediate needs and that collectively they can identify some common goals and directions for the future.

Dr. John Yancey, Director of Education at the School of Dentistry, University of Louisville will be the principal resource person and animateur. Dr. Yancey enjoys an excellent reputation in the field of Dental Education. Many conferences and workshops have benefited from his leadership, including some that have been held at Dalhousie University and the University of Manitoba.

Credit for making the whole gathering possible must go to Dr. Lorne E. MacLachlan of Ottawa who, through the Canadian Fund for Dental Education, has made available considerable funds to be used for the improvement of removable prosthodontics teaching, especially in the areas of complete dentures and maxillofacial prosthetics.

More information can be obtained from Dr. D. V. Chaytor, Continuing Education in Dentistry, Faculty of Dentistry, Dalhousie University, Halifax, N.S.

Dr. J. Smith

Canadian Academy of Endodontics

The 13th annual meeting of the Canadian Academy of Endodontics was held at the Hyatt Regency Hotel in Toronto, October 28-30, 1977. In conjunction with this meeting, was the Third Annual Teachers' Workshop where endodontic dental educators from all the Canadian Dental Faculties discussed endodontic education across the nation.

During the meeting, the following Academy members were elected to office for the 1977-78 term: Dr. Jerry Smith, president; Dr. John M. Phillips, vice-president; and Dr. F. Bruce Burns, secretary-treasurer.

In memoriam

J. R. Trott

It is with sadness that the Canadian Dental Association reports the death of John Richard Trott of Winnipeg, Manitoba, at the age of 52. At the time of his death, Dr. Trott was Professor and Head of the Section of Oral Pathology, Faculty of Dentistry, University of Manitoba.

Dr. Trott was born in India and received his education in Hong Kong, England and Australia. Upon graduating with a B.D.S. from the University of Adelaide in 1959 he began a distinguished career in dental education and research. In 1959 he joined the Faculty of Dentistry, University of Manitoba, as Associate Professor of Periodontology. In 1964 he became Associate Professor of Oral Pathology, and in 1967 was named Professor and Head of Oral Pathology. Seventy-nine published scientific papers, three published books and an extensive list of papers and lectures delivered to a variety of scientific meetings are witness to the dedication and vitality of the man.

Canadian Association of Orthodontists

During the annual meeting of the Canadian Association of Orthodontists held in Toronto, October 23, 1977, the following members were elected to the executive for the 1977-78 term: Dr. L. Melosky, Winnipeg, president; Dr. R. Faith, Montreal, president-elect; Dr. M. Cripton, Moncton, vice-president; and, Dr. J. Schachter, Saskatoon, secretary-treasurer.

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Deaths

Dube, J. Augusta, 78. Rimouski, Quebec. University of Montreal. 11-77. Survived by Laura (wife), Denise, Celine and Monique (daughters).

Mahaffy, Wilbert Guy, 72. Copper Cliff, Ontario. University of Toronto, 1930. 11-77.

Miller, Frank Lewis, 72. Fredericton, New Brunswick. Dalhousie University, 1929. 25-11-77. Survived by Bertha (wife) and Robert (son).

Rumberg, Joseph B., 67. Willowdale, Ontario. University of Minnesota, 1937. 11-77.

Seigel, Veldon Boyd, 57. Kamloops, British Columbia. University of Toronto, 1951. 27-10-77. Survived by Noreen (wife) and Jane (daughter).

Trott, John Richard, 52. Winnipeg, Manitoba. University of Adelaide, Australia, 1950. 24-10-77. Survived by Felicity (wife), Bill and Chris (sons).

Wallace, Alexander Marshall, 62. Calgary, Alberta. University of Alberta, 1950. 10-10-77. Survived by Lois (wife), James (son), Susan, Maureen and Donna (daughters).

Wood, Frank, 83. Toronto, Ontario. University of Toronto. 10-11-77. Survived by Helen Catherine (wife), Thomas (son), Catherine, Frances and Helen (daughters).

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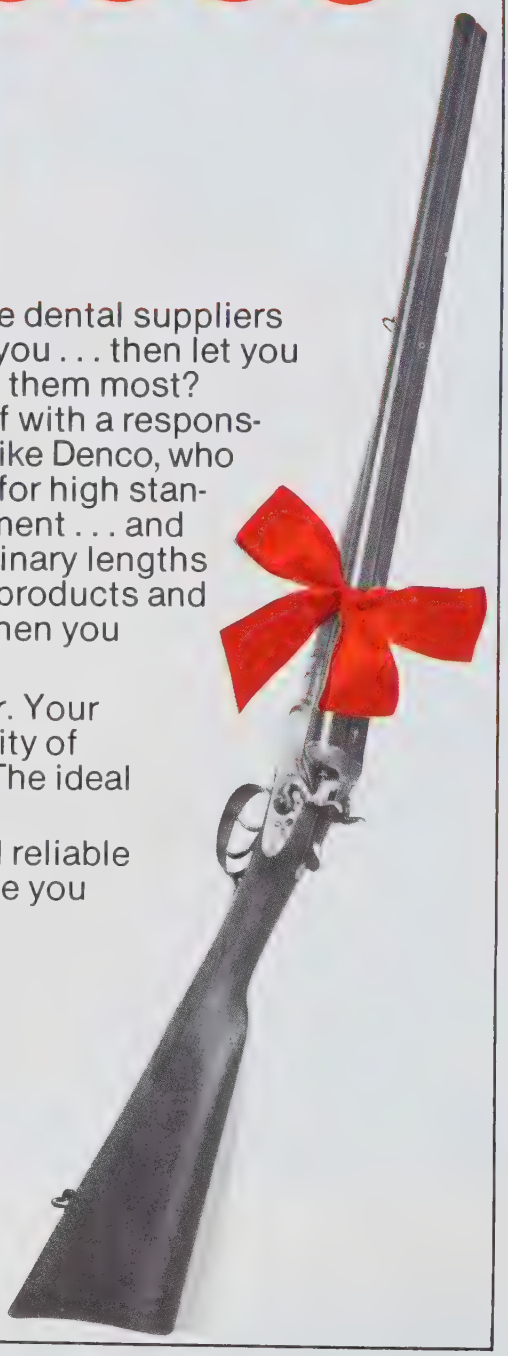


Medical Research Council Grant

Under the terms of a Medical Research Council Grant a dental training program has been established at the Faculty of Dentistry of the University of Toronto which provides two openings each year for Canadian graduate dentists interested in research in the clinical dental sciences and is designed to provide research trained clinical teachers for Canada. Curriculum covers a minimum of four years including at least three years devoted to training in research leading to a Ph.D. degree. Funded by the Medical Research Council the program provides successful applicants with awards equal to those of MRC Fellows.

Applications and further information can be obtained from: Dr. G. S. Beagrie, Dental Training Grant Programme Director, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto, Ontario, Canada M5G 1G6.

CDA Board of Governors Meeting

The Board of Governors of the Canadian Dental Association will hold an interim meeting March 13 and 14, 1978, at the Chateau Laurier Hotel in Ottawa.

Instructions to Contributors

The Journal of the Canadian Dental Association is currently soliciting research and clinical articles for publication. Interested contributors are asked to use the following outline of requirements when preparing manuscripts.

Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies — original and a carbon — typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, 8½ × 11 inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

Article Titles Make article titles descriptive but as concise as possible. Long titles discourage reading, present typographical and layout problems and create difficulties in library indexing.

References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. J Canad Dent Ass 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

Illustrations: Line and halftone illustrations should be of high quality for satisfactory reproduction.

Photographs — Handle photographs carefully. Do not bend, fold or use paper-clips. Photographs should be unmounted, untrimmed, good, sharp, black and white glossy prints, preferably not larger than 10 × 8 inches. Color work can only be published at the author's expense. Magnification of photomicrographs must always be given. Photographs must not be written on or typed on. On the back of each photograph, very lightly and in pencil, write the author's name, the figure number and indicate the top edge. If a figure contains two or more photographs, do not mount the parts; on the back of each photograph write very lightly in pencil the figure number and part letter (Figure 1a, etc.) and indicate the top edge. Patients must not be recognizable unless the written consent of the subject to publication has been obtained.

Drawings — Figures, graphs, charts and diagrams should be drawn and lettered in india ink. Lettering must be large enough to be read after the drawings are reduced to column width (small, simple drawings) or page width (larger, more complex drawings).

Legends — Figure legends should be typed as a group on a separate sheet. They should be separate from the text of the article and from the illustrations.

Tables: Each table should be typed on a separate sheet. Tables should be numbered consecutively and tailored to fit within column width or page width. Table title and table footnotes should be on the same page with the table. Do not show vertical rules in tables.

Permission and Waivers: These should accompany the manuscript when it is submitted for publication. Permission of author and publisher must be obtained for the direct use of material (text, photos, drawings) under copyright that is not your own. Up to one hundred words of prose material usually can be quoted without getting permission, provided the material quoted is not the essence of the complete work. Waivers must also be obtained for the publication of photographs showing persons, unless faces are masked to prevent identification. Waiver forms are available from the editor.

LA SEPTIÈME DÉMONSTRATION CANADIENNE DE TABLE CLINIQUE DES ÉTUDIANTS

La septième démonstration canadienne de table clinique des étudiants a été tenue à Toronto dans le cadre du 65ème Congrès dentaire mondial annuel de la Fédération dentaire internationale, du 22 au 28 octobre. Une fois de plus, ce programme était parrainé par la Compagnie Dentsply Canada Ltée, grâce à une subvention spéciale accordée au Fonds canadien pour l'enseignement dentaire.

C'était pour la septième année consécutive que le Conseil sur l'éducation de l'ADC organisait ces démonstrations cliniques et toutes les dix écoles dentaires du Canada y étaient représentées.

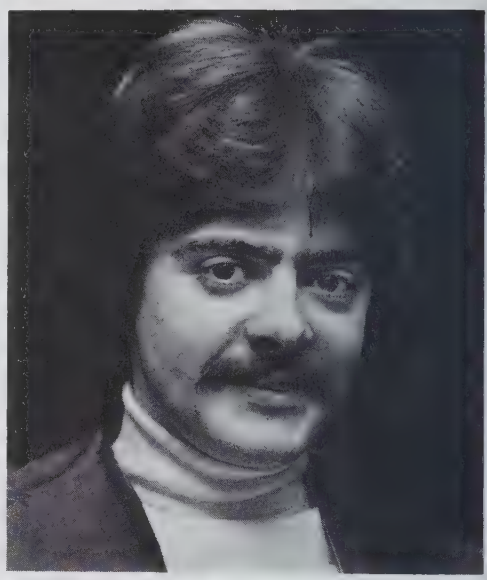
Après avoir obtenu la première place au programme de table clinique du printemps de leur faculté, les étudiants avaient droit à un voyage à Toronto tous frais payés. Les doyens des facultés dentaires n'offrant pas ce programme avait été invités à choisir un étudiant clinicien de mérite, afin qu'il participe au programme annuel.

Aux termes d'une définition établie par le Conseil sur l'éducation, une table clinique consiste à présenter sur une table, une technique ou une méthode se rapportant à une phase quelconque de la recherche, du diagnostic ou du traitement dentaires.

Voice, ci-dessous, la liste des étudiants qui participaient au programme, la faculté dont ils font partie et les titres de leur présentation: Paul Belzycki, Université de Toronto — ''Les effets de la tétracycline sur la distribution du calcium''; Carol Haeberle, Université de l'Alberta — ''Carie dentaire et susceptibilité de la dent''; Colin A. MacPhee, Université Dalhousie — ''Troisième molaires: pathologie''; Lynda Nicholson, Université Laval — ''Greffe de dentine''; Donald E. Noble, University of Western Ontario — ''La Biopsie: important outil diagnostique;'' M. Gilles Riendeau, Université de Montréal — ''Étude de la force d'adhésion d'une dent en acrylique à une base de prothèse (en acrylique)''; Stanley T. Soon, Université de Colombie-Britannique — ''Technique de pulpotomie à l'aide de formocrésol: une visite unique''; Douglas J. Vincelli, Université McGill — ''La xéroradiographie en médecine dentaire''; Harold Weiss, Université de la Saskatchewan — ''Caractère unique de la carie à la surface de la racine''; Rina Weiszner, Université du Manitoba — ''Rapports horizontaux entre les mâchoires des personnes édentées''.

Le dimanche soir, 23 octobre, Monsieur Henry M. Thornton, Président du Conseil et Administrateur en chef de Dentsply accueillait les étudiants à une réception et un dîner offerts par cette Compagnie. Le dîner, qui a eu lieu au Sheraton Centre, réunissait environ 100 personnes, y compris les étudiants cliniciens, les doyens, les conseillers des facultés dentaires canadiennes, ainsi que des invités de marque représentant la profession et l'éducation dentaires.

Les étudiants cliniciens ont également fait l'objet d'éloges lors des cérémonies officielles d'inauguration de la Fédération dentaire internationale, tenues dimanche soir au Centre des Congrès de l'Hôtel Harbour Castle. Le mardi 25 octobre, à la Place canadienne d'exposition de l'Automotive Building', les étudiants ont présenté leur clinique à tous les délégués du Congrès de la FDI.



Dr. Yves Tellier

Association des chirurgiens dentistes du Québec

Le Président directeur général de l'Association des chirurgiens dentistes du Québec, le docteur Claude Chicoine, est heureux d'annoncer la récente élection du docteur Yves Tellier au poste de Président du Conseil d'administration de ce syndicat professionnel qui regroupe la majorité des dentistes du Québec.

Font également partie du Comité exécutif pour le mandat 1977-1978, les dentistes suivants: Dr. Yves Giguère, Dr. Jean-Pierre Martel, Dr. Denis Veillette, Dr. Henri Marsolais et Dr. Jacques Coderre.

Réunion du Bureau des Gouverneurs de l'ADC

Une réunion intérimaire du Bureau des Gouverneurs de l'Association Dentaire Canadienne aura lieu les 13 et 14 mars 1978 à l'Hôtel Château Laurier à Ottawa.

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THE INFLUENCE OF GLAND SIZE ON THE FLOW RATE AND COMPOSITION OF HUMAN PAROTID SALIVA

C. Dawes, BSc, BDS, PhD
H. G. Cross, BSc, DMD
C. G. Baker, DMD, MScD
F. S. Chebib, BSc, MSc, PhD
Winnipeg, Manitoba

With the hope of improving the diagnostic value of saliva analyses, the purpose of this study was to determine whether inter-individual variation in parotid salivary composition could be reduced at low, medium and high flow rates by standardizing flow rate as μl ml gland^{-1} min^{-1} rather than as ml min^{-1}, when other known variables were kept constant. Parotid gland volume was measured by a sialographic technique in 18 male and 12 female young adult subjects and parotid saliva was analyzed for total protein and all the common electrolytes. The results showed that the maximum stimulated flow rate (as ml min^{-1}) was directly proportional to gland volume. In addition, the inter-individual variation in salivary composition at a given flow rate was large and could not be reduced by expressing flow rate on the basis of gland volume rather than as the more usual ml min^{-1}. Thus only the diagnostic value of maximum salivary flow rate, but not salivary composition, could be improved by measuring gland volume.

Analyses of the total protein and common electrolyte concentrations in saliva have been of little value for the diagnosis of systemic, oral or salivary gland disease because of the large inter-individual variation in composition between normal subjects at any given flow rate.[1-3] This variation is still high even when such factors as the type of saliva, flow rate, duration of stimulation, time of day of saliva collection, the proximity to previous saliva collections and the nature of the secretory stimulus are well standardized.[1,4,5]

In the above studies, salivary flow rate was always expressed as ml min^{-1} and it would seem possible that part of the inter-subject variation in salivary gland composition at any given flow rate could be due to inter-subject variation in gland size. The normal parotid gland may show a four-fold variation in volume between individuals.[6] It is therefore apparent that if parotid flow rate is standardized at say 0.5 ml min^{-1}, then on the basis of gland volume, a small gland may have to secrete at four times the rate of a large gland.

In studies on animal salivary glands it has been common practice for many years to express flow rate in terms of gland weight — e.g. Wills and Fenn.[7] However, in 1931, Gregerson and Ingalls[8] expressed flow rate as ml kg body weight^{-1} hour^{-1}, "since the weight of the submaxillary gland (in dogs) is roughly proportional to the body weight. . . ." More recently,[9] human parotid flow rate was expressed without comment, as ml square metre of body surface^{-1} min^{-1}.

The purpose of this study was to determine whether inter-individual variation in parotid salivary composition could be reduced at low, medium and high flow rates by standardizing flow rate as μl ml gland^{-1} min^{-1} rather than as ml min^{-1}, when other known variables were kept constant. It was hoped that this might facilitate identification of patients who might be particularly susceptible to such diseases as dental caries.

Methods

The subjects were 30 healthy adults, of age range 19-39. The procedures were fully explained to the subjects and a signed consent form was obtained prior to commencement of the study.

Parotid gland volume was measured by a sialographic technique[10] using the same radiographic procedures as those described by Ericson. However, rather than injecting contrast medium into the parotid duct until the subjects experienced pain, a procedure which gave unsatisfactory sialograms in our hands, an isobaric technique[11] was used with the pressure being taken to no more than about 200 mg Hg.

Two observers independently traced on acetate film the perimeter of the radiographic outline of the gland. All tracings were viewed by an oral radiologist and several were also checked by Professor S. Ericson of Umea, Sweden. The volume (V) in ml of each parotid gland was calculated from the mean of the areas (A) in cm^2 of the two tracings of the radiographic outline of the gland by the formula $V = 2.32A - 13.44$, as determined by Ericson and Hedin.[10]

A histogram of the computed gland volumes for the 30 subjects is shown in Fig 1. The gland volumes ranged from 12 to 53 ml with a mean of 31.66 and a S.D. of 11.82.

Saliva collections did not begin until about four weeks after sialography. Then parotid saliva was collected from each of the 30 subjects at 12.30 pm $\pm$30 min on at least

seven separate occasions. The subjects were requested to refrain from eating, drinking or smoking for two hours preceding each collection.[5] On each occasion, sour-lemon-drop stimulated saliva was collected at a different, predetermined, but randomly sequenced, constant flow rate using the technique of Dawes.[1] Saliva was collected at the following three-flow rates for two successive five-minute periods (0-5 min. and 5-10 min.).

(1) 0.25 ml min^{-1} (the low flow rate)
(2) 0.50 ml min^{-1} (the moderate flow rate)
(3) 1.00 ml min^{-1} (the high flow rate).

Since the average gland size was 31.66 ml, the above three flow rates averaged 7.90, 15.79 and 31.59 μl ml $gland^{-1}$ min^{-1}, respectively. Thus for saliva collections Nos. 4, 5 and 6, different flow rates (as ml min^{-1}) were computed for each subject, based on the subject's gland size, such that for the three collections the flow rates expressed on the basis of gland size would be the same for each subject and equal to 7.90, 15.79 and 31.59 μl ml $gland^{-1}$ min^{-1}, respectively.

In addition, for collection No. 7, the subjects were asked to secrete at the maximum possible flow rate for one five-minute collection.

Four of the 30 subjects were incapable of reaching a flow rate of 1 ml min^{-1} (collection No. 3) and the two subjects with the largest glands were incapable of achieving the required flow rate of 31.59 μl ml $gland^{-1}$ min^{-1} for collection No. 6.

The saliva was analyzed for calcium, magnesium, sodium, potassium, inorganic phosphate, chloride and total protein.[4] Since bicarbonate was the only other electrolyte present in the saliva in significant quantities, its concentration was computed as described previously.[4]

Most statistical calculations were carried out using the SPSS system[12] on the IBM 370 computer. A special program was written by Mr. K.J. Carpenter to calculate confidence limits for regression lines.

Results

The standard error of measurement[13] was 0.215 cm^2 for the average gland area of 19.87 cm^2 on the sialogram indicating a maximum error not exceeding 0.44 cm^2 (2.2 per cent) for 95 per cent of the glands. In addition, a paired t-test showed no significant systematic difference between the two observers in the areas of their tracings of the gland outlines. In the few individual cases where there was a clear disagreement with respect to a certain region of the sialogram, the judgement of the oral radiologist was accepted.

Flow rates and salivary composition for the seven different saliva collections (means ± standard deviations)

Table 1

Collection No.	1	2	3	4	5	6	7
Flow rate							
(ml min^{-1})	0.249 ± 0.017	0.489 ± 0.013	0.978 ± 0.049				1.569 ± 0.681
(μl ml $gland^{-1}$ min^{-1})				7.76 ± 0.51	15.54 ± 0.70	30.95 ± 1.75	
Protein (mg %)	202.8 ± 101.6	231.0 ± 117.6	355.2 ± 163.5	198.7 ± 133.0	247.8 ± 136.4	326.5 ± 126.7	380.1 ± 114.9
Sodium (mM)	5.81 ± 4.40	17.72 ± 10.24	37.23 ± 16.08	5.79 ± 4.74	15.48 ± 10.39	34.93 ± 20.18	54.07 ± 19.12
Potassium (mM)	21.91 ± 3.80	21.00 ± 2.52	19.45 ± 2.95	22.08 ± 3.06	20.47 ± 2.62	19.90 ± 3.20	21.33 ± 3.68
Calcium (mM)	0.69 ± 0.17	0.79 ± 0.17	1.03 ± 0.17	0.72 ± 0.19	0.85 ± 0.22	1.07 ± 0.34	1.28 ± 0.37
Magnesium (μM)	27.9 ± 10.2	19.9 ± 5.7	17.0 ± 6.0	31.2 ± 11.1	23.1 ± 12.3	18.9 ± 8.2	20.1 ± 10.1
Chloride (mM)	12.64 ± 3.36	16.72 ± 6.12	24.75 ± 11.23	12.99 ± 4.02	16.23 ± 6.10	24.14 ± 10.77	38.88 ± 12.55
Inorganic P (mM)	4.66 ± 1.10	3.79 ± 0.80	3.30 ± 0.99	4.67 ± 0.99	3.86 ± 0.80	3.25 ± 0.79	3.12 ± 0.68
Bicarbonate (mM)	8.70 ± 3.77	16.44 ± 6.11	27.56 ± 7.69	8.58 ± 4.28	14.25 ± 6.67	26.49 ± 10.86	32.17 ± 13.53

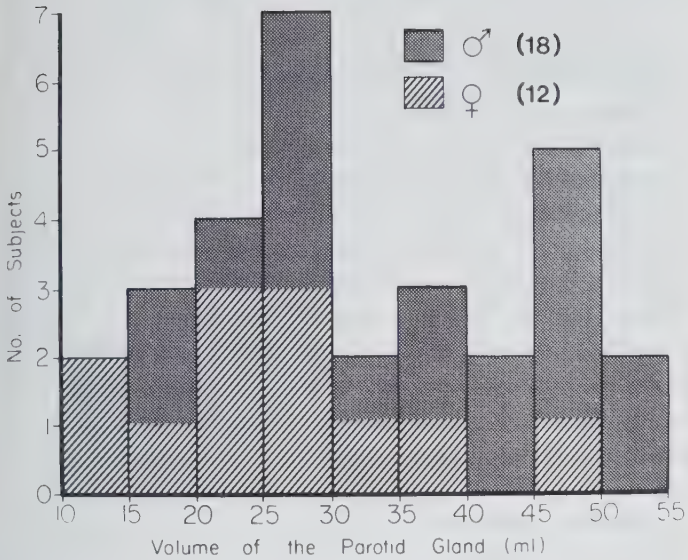

Fig 1 Histogram of the computed parotid gland volumes for the 30 subjects.

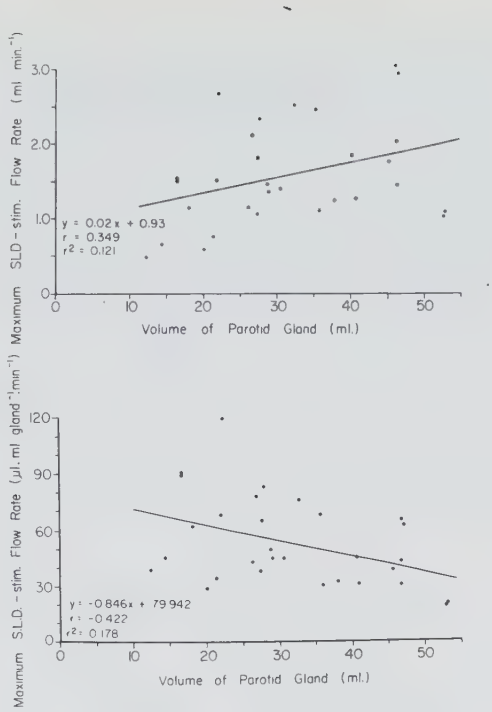

Fig 2 The relationship between maximum salivary flow rate (Collection No. 7) and parotid gland volume for the 30 subjects. SLD-stim = sour lemon drop stimulated.

The tracing error was far less than the inter-individual variation in gland size (Fig 1).

Figure 2 illustrates the relationship between maximum flow rate (collection No. 7) and gland volume. The two subjects with the largest glands had unusually low maximum flow rates and when their data were eliminated from the computations the correlation co-efficient for maximum flow rate (ml min^{-1}) with gland volume increased from 0.35 to 0.53, whereas that for maximum flow rate (μl ml $gland^{-1}$ min^{-1}) with gland volume changed from -0.42 to -0.29, the latter not being statistically significant. The value of r^2 in Figure 2 is a measure of the fraction of the total variance in maximum flow rate attributable to gland volume.

Table 1 shows that the mean actual flow rates were very close to the theoretical flow rates which the subjects had been asked to achieve. In addition, Table 1 gives the results of the salivary analyses for the 5-10 min samples of collections No. 1-6 and the 0-5 min sample collected at maximum flow rate (collection No. 7).

For most components of saliva the variance was less for the 5-10 min samples than for the 0-5 min samples (data not shown) due to the fact that the 0-5 min sample would contain some "unstimulated" saliva and be subject to the "transient" variations in salivary composition known to occur for many components at the beginning of stimulation.[14]

In order to determine whether the inter-individual variance in salivary composition was less when flow rate was expressed as μl ml $gland^{-1}$ min^{-1} rather than as ml min^{-1}, an F-test was carried out to compare the variance at the flow rates for collection Nos. 1-3 with those for collection Nos. 4-6, respectively. For 37 of the 48 comparisons, the variance in salivary composition was greater when flow rate was expressed on the basis of gland volume rather than as

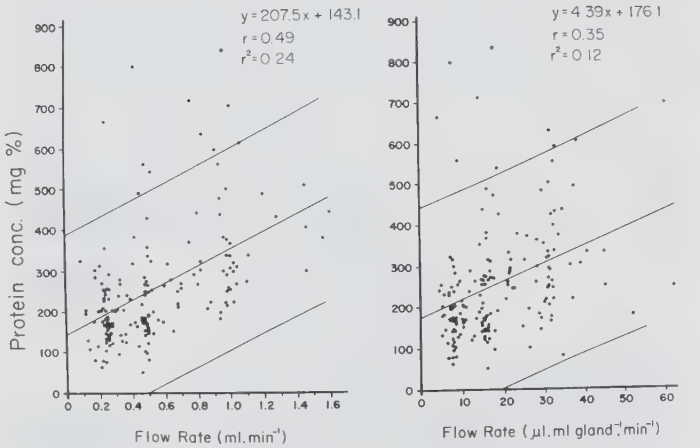

Fig 3 The effect of flow rate expressed as either ml min^{-1} or μl ml $gland^{-1}$ min^{-1} on the protein concentration in the 5-10 min sample of stimulated parotid saliva. The simple linear regression lines and 95 per cent confidence limits for individual values are also shown. The 95 per cent confidence lines actually diverge slightly from the linear regression line at each end of the latter.

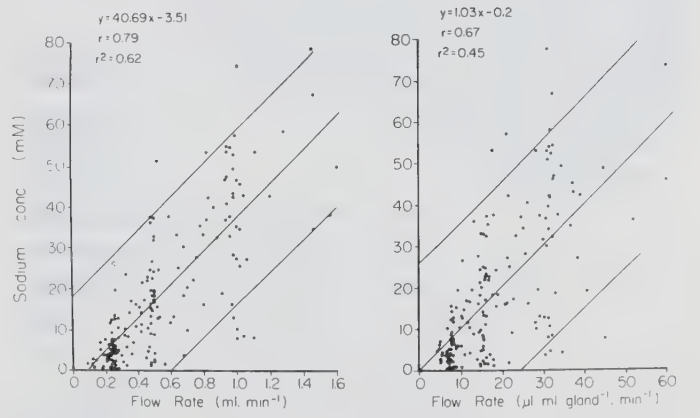

Fig 4 The effect of flow rate expressed as either ml min^{-1} or μl ml $gland^{-1}$ min^{-1} on the sodium concentration in the 5-10 min sample of stimulated parotid saliva.

ml min^{-1}, and this group included all eight of the comparisons where the variances were significantly different.

Figures 3 and 4 give examples from the data for the 5-10 min samples when flow rates were plotted as both ml min^{-1} and as μl ml $gland^{-1}$ min^{-1}. The simple linear regression lines are also shown, together with their equations, and the 95 per cent confidence limits for single value predictions. The large degree of inter-individual variation in salivary composition at any given flow rate is readily apparent. It was found that, except for inorganic phosphate, there was a higher correlation between salivary composition and flow rate when the latter was expressed as ml min^{-1} rather than as μl ml $gland^{-1}$ min^{-1}. Furthermore, when gland volume was added to the regression equations of each of the eight salivary constituents on flow rate, the amount of improvement in predictability (r^2) was in all cases negligible. The correlations between salivary composition and flow rate could seldom be improved by taking the logarithm of the values for comparison, for flow rate or for both composition and flow rate. Thus it seemed justifiable to show simple linear correlations in Figures 3 and 4.

A co-variance analysis was also performed to measure the effect of gland volume on the salivary composition at a constant flow rate. The observed concentration of each element for each subject was adjusted for the individual's mean flow rate. The adjusted means were then correlated with gland volume. The results confirmed the insignificant role that gland volume plays in determining salivary composition. The correlation coefficients, based on 30 subjects, ranged from a maximum of 0.29 for inorganic phosphate to 0.10 for each of potassium and calcium.

Discussion

A saliva collection time of 12:30 p.m. $\pm$30 min was specifically chosen to minimize the effects of the known circadian variations in salivary composition.[15] It should be emphasized that the 95 per cent confidence limits shown in Figures 3 and 4 only apply to saliva samples collected just prior to normal lunch time and during the 5-10 min period of stimulation at constant flow rate. For instance, if the saliva samples had been collected at the beginning of the working day, we would have anticipated higher sodium and lower protein concentrations.[15] Similarly, since the concentrations of several salivary components are very dependent on the duration of stimulation[1] and the relation of the time of saliva collection to meals and to previous salivary stimulation,[5] these parameters were rigidly controlled to reduce extraneous sources of inter-individual variation.

The most unexpected finding was that inter-individual variation in salivary composition could not be reduced and, for 37 of the 48 comparisons made, was actually increased by expressing flow rate as μl ml $gland^{-1}$ min^{-1} rather than as ml min^{-1} (Table 1 and Figs 3 and 4). Of course it was not anticipated that variation could be reduced for such components as potassium, the concentration of which, in stimulated saliva, is virtually independent of flow rate. However, for components such as sodium and bicarbonate, the concentrations of which are very dependent on flow rate, the results were very surprising, and it is apparent that causes other than differences in gland size must be sought to explain the large variation in salivary composition between individuals.

Although the sialographic technique which we used gives a good estimate of parotid gland volume,[10] it does not provide information about the relative proportions of secretory and non-secretory tissue. There appear to have been no quantitative studies on age-related changes in human parotid glands, but in such a study on human submandibular glands[16] it was reported that between childhood and old age there is a progressive replacement of parenchymal tissue by fat and connective tissue, so that over this time span an average of about a quarter of the relative secretory cell volume is replaced. If such changes occur in parotid glands they might contribute to some of the variance, although most of our subjects were relatively young adults of very similar age. Perhaps more importantly with respect to the present study, for each age group studied by Waterhouse *et al*,[16] considerable variation was found between individuals in the relative fraction of parenchymal tissue.

The assumption has generally been made that in a given salivary gland all acinar and ductal units are always active to the same extent when secretion is occurring. If this assumption were incorrect and different regions of the gland were secreting at different rates, this might help to explain why inter-subject variability in salivary composition was generally greater when flow rate was expressed on the basis of gland size rather than as ml min^{-1}.

Figure 2 shows the significant positive correlation ($p<0.05$) between maximum possible flow rate (collection No. 7), expressed as ml min^{-1}, and gland volume, confirming the work of Ericson.[17,18] Correlation between maximum flow rate and subject height or weight was not statistically significant. When maximum flow rate was expressed as μl ml $gland^{-1}$ min^{-1} there was a small significant negative correlation between flow rate and gland volume. The two subjects with the largest glands had relatively low secretory capacity (Fig 2) and when their data were omitted from the correlation analysis, the negative correlation no longer reached statistical significance. This latter result implies that per unit weight of gland, a small gland has the same maximal secretory capacity as a large gland.

Our mean maximum flow rate was 1.57 ml min^{-1} (Table 1) and, since the mean gland area was 19.87 cm^2, it may be calculated from the data of Ericson,[17] who compared flow rates on gustatory stimulation with 1, 6 and 10 per cent citric acid, that the sour lemon drop stimulation achieved flow rates comparable to those produced by between 1 and 6 per cent citric acid. With 6 per cent citric acid as the stimulus, he reported a correlation coefficient of 0.70 for the relation between flow rate and gland size whereas with the 28 subjects we found a correlation coefficient of 0.52. This somewhat lower value may have been because our subjects had to be actively involved in sucking as hard as

possible on the sour lemon drop, whereas Ericson's subjects were responding passively to the 6 per cent citric acid being applied to the tongue.

In conclusion, then, our results confirm that maximum flow rate of parotid saliva is proportional to gland size. In addition they suggest that the degree of inter-individual variation in salivary composition at a given flow rate is actually greater when flow rate is expressed on the basis of gland volume rather than as the more usual ml min^{-1}. Thus only the diagnostic value of maximum salivary flow rate, but not salivary composition, can be improved by measuring gland volume.

The range of inter-individual variation in normal salivary composition remains disconcertingly large, making it difficult to use salivary composition in the prediction of susceptibility to such conditions as dental caries. However, measurement of salivary gland size may be of value in clinical assessment of patients with xerostomia of unknown aetiology. The sialogram will not only indicate gland size but may also give information concerning intra- or extra-glandular pathology. In fact, two of our initial subjects showed evidence of glandular pathology, which was quite asymptomatic, and these subjects were not included in the 30 experimental subjects.

The authors wish to thank the subjects for their co-operation, Mrs. S. Chan and Mrs. V. Brown for technical assistance, Mr. K. J. Carpenter for assistance with computer programming and the Medical Research Council for financial support for Dr. Dawes. We are particularly grateful to Professor S. Ericson for his valuable advice on the sialographic estimation of gland volume. This project was carried out in partial fulfilment of the requirements for an M.Sc. in Oral Biology by Dr. H. G. Cross, and is described in more detail in his thesis (1977) of the same title.

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Reprint requests to Dr. Dawes.

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STOMATITIS AREATA MIGRANS

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A case of stomatitis areata migrans is presented. The clinical and histopathologic features of this condition are discussed.

Migratory glossitis (geographic tongue) is a relatively common condition of unknown etiology.[1,2] The occurrence of a similar erythematous rash on mucosa other than the tongue is evidently rather uncommon. Cooke[3] reported the first case in 1955 and subsequently other cases have been added to the literature.[4-7] Either these lesions are rare or are not noticed. This case is presented to draw attention to the classic appearance and migratory nature of the condition.

Case report

A 27 year-old Caucasian male attended the Faculty of Dentistry, The University of Western Ontario in October, 1976 for routine examination and dental care. He had no chief complaint.

The patient's medical history was essentially negative. He was not taking any medications nor using any drugs and did not have a history of diabetes, allergies nor skin lesions.

Oral examination revealed marginal gingivitis, moderate caries activity, fissured tongue and migratory glossitis. There was no lymphadenopathy and the remainder of the physical examination was unremarkable.

During treatment on March 29, 1977, a number of asymptomatic erythematous areas were noticed throughout the oral mucosa. These areas were annular or horeshoe-shaped, surrounded by a slightly elevated yellow-white border. Many of these lesions were located on the inner aspect of the lower lip. Similar lesions were found inside the upper lip and bilaterally on the buccal mucosa. They varied in size, the largest being approximately 10 mm in diameter (Fig 1). Migratory glossitis was noted on the lateral border of the tongue (Fig 2). No lesions were seen on the attached gingiva. The location of each lesion was recorded on a chart of the oral mucosa. By April 5, 1977, the general pattern of the lesions had changed. Many of the lesions of the lower lip had decreased in size or disappeared. A few small new lesions were noted and there was some enlargement of the lesions on the upper lip.

Almost all lesions had disappeared by April 19, 1977 except for a few scattered erythematous areas which remained (Fig 3).

On June 9, 1977, two small lesions of the lower lip and some vague erythematous patches in the buccal mucosa were observed. An isolated single lesion of the mucosa of the upper lip was noted (Fig 4) and an excisional biopsy of this lesion was performed.

Microscopic appearance

The section of mucosal tissue was covered by a thick layer of edematous, parakeratinized stratified squamous epithelium. Transmigration of a moderate number of neutrophils through the epithelium and the development of microabscesses were seen. There was a well vascularized sub-epithelial connective tissue with a mild lymphocytic infiltrate. The histologic appearance was consistent with areata migrans (Fig 5).

Discussion

Cooke[3] initially described the lesions of stomatitis areata migrans (erythema migrans) as being horseshoe-shaped erythematous areas with slightly raised buff-coloured margins. He found these asymptomatic lesions throughout the oral mucosa including the lateral borders of the tongue and the lower lip. Cooke's description of the lesions are consistent with those later reported in the literature as well as the case presented here. Aside from the tongue, the lower lip appears to be the most frequently reported site of areata migrans.[5,6] The occurrence of stomatitis areata migrans without tongue lesions is apparently extremely rare. The case reported by Rood,[4] had a history of tongue lesions but initially presented only with lip lesions. However, two weeks later "geographic tongue" developed.

The case presented here shows significant alteration in pattern and severity over a 10-week period. A map of the lesions showed measurable changes in pattern even during one week. Rood also reported a similar variability.[4]

During the active stage of the lesions, the mucosa had a whorled or "fingerprint" pattern associated with the erythematous patch (Fig 1) that virtually disappeared during the remission phase. This pattern may represent capillary distention in the sub-epithelial tissues peripheral to the central lesion.

The asymptomatic nature of this condition has probably contributed to the infrequent reports in the literature.

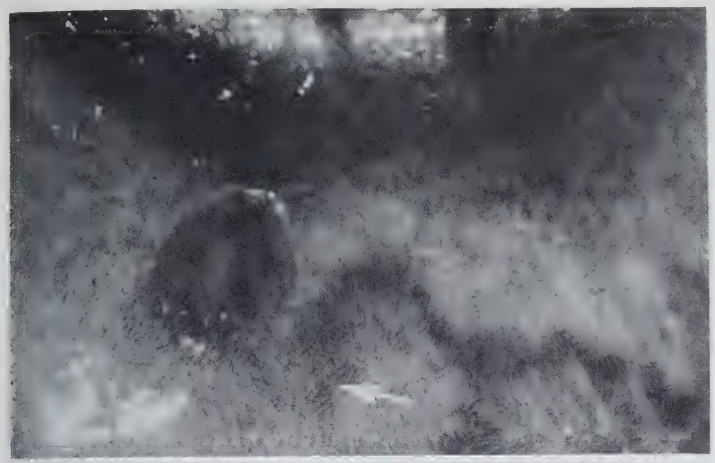

Fig 1 Stomatitis areata migrans lesions on the mucosa of lower lip on March 29, 1977. Arrow indicates "fingerprint" pattern.

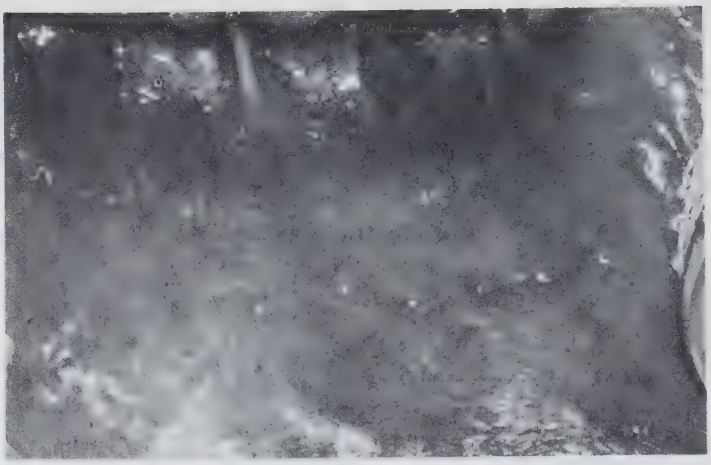

Fig 3 Mucosa of lower lip on April 19, 1977.

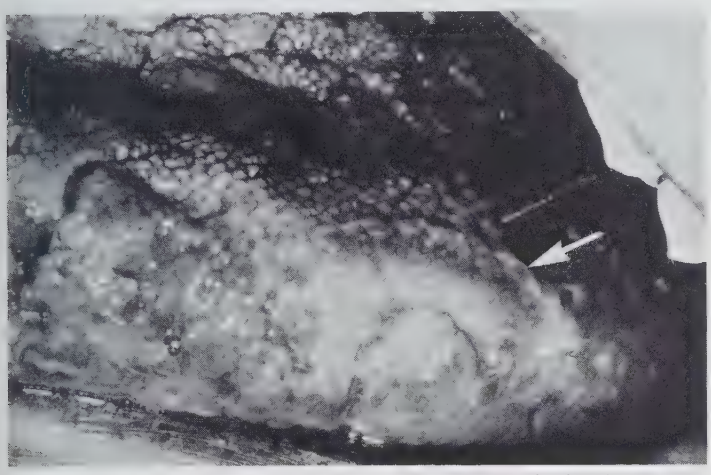

Fig 2 Lateral border of tongue showing fissures and migratory glossitis (arrow) on March 29, 1977.

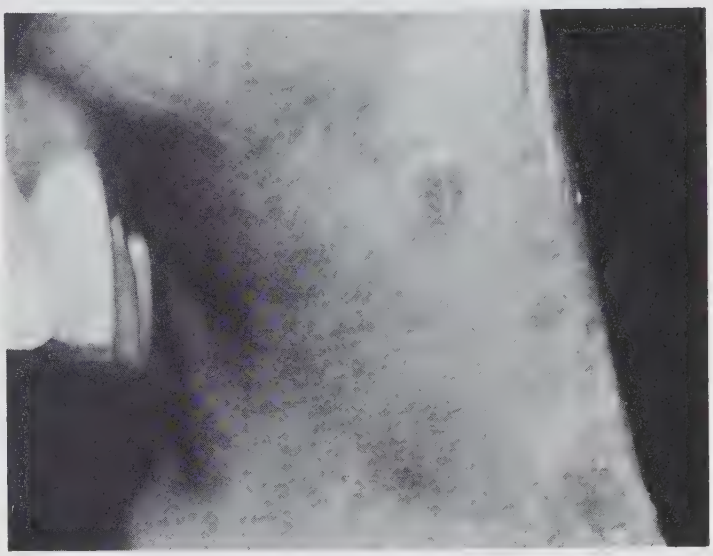

Fig 4 An isolated lesion of the upper lip on June 9, 1977.

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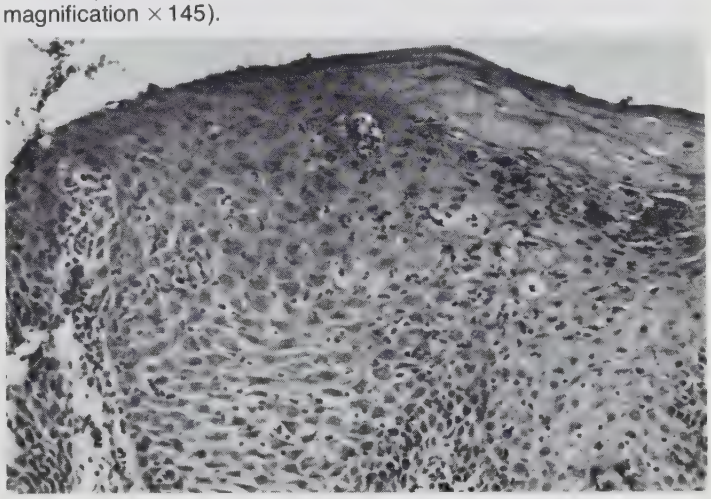
Fig 5 Photomicrograph of lesion shown in Fig 4. A moderate number of neutrophils are present in the epithelium. (H and E stain, magnification $\times 145$).



OCCLUSAL EXAMINATION

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This paper presents a simplified method of evaluating the natural occlusion on the basis of patient history, radiographic interpretation and clinical examination. It emphasizes that parafunctional activity can be manifested by altered function, symptomatology or damage to the temporomandibular joints and associated structures, trauma to oral soft tissues, attrition and accentuated loss of supporting bone. Thus the general dentist should include an occlusal examination in his treatment of patients.

The general dentist treats patients with primarily three types of oral disease: dental caries and its sequelae, periodontal disease and its sequelae, and disorders of occlusion. The traditional dental school curriculum has emphasized techniques of diagnosis for the first two disease categories, whereas diagnostic techniques for occlusion often have been limited to orthodontic classification and prosthetic or restorative occlusal schemes. The purpose of this paper is to present a rapid method of examination of the natural occlusion which utilizes patient interview and case history, radiographic studies, and clinical hard and soft tissue examination.

History

The interview should elicit information from the patient which determines how well he can function (chew) and whether he parafunctions (bruxes). Functional capability can be evaluated by asking the following questions:

1. Do you have any problems chewing with the teeth you have?
2. Are there any foods that you cannot chew?
3. Do you chew on both sides of your mouth?

Inadequate chewing ability and unilateral chewing patterns suggest a need for occlusal therapy to improve function.

Parafunctional activity can be detected by questions which provide information regarding bruxism and its sequel, traumatic occlusion, which can affect the temporomandibular joints and associated ligaments, muscles of mastication, lining oral mucosa, crowns and pulps of teeth and the periodontium:[1]

1. As far as you know, do you ever clench, gnash or grind your teeth together?
2. Have you even noticed any soreness in your jaw joints?
3. Have you ever noticed any cracking, snapping or popping noises in the jaw joints?
4. Do you ever accidentally bite your tongue when you are chewing?
5. Do you ever have any soreness of the muscles around your head and neck?
6. Do you bite your cheeks and lips?
7. Do you have any teeth that are sensitive or sore?
8. Do you have any teeth that are loose?

Affirmative answers to these questions call for elaboration. When answers to any of the previous questions are positive, the index of suspicion is increased regarding parafunction, uncoordinated muscle activity and the presence of traumatic occlusion. Traumatic occlusion suggests a need for occlusal therapy to eliminate parafunction.

Radiographic examination

Adequate radiographs are necessary in order to detect radiographic signs of traumatic occlusion. Long-cone, right angle periapical radiographs and posterior bitewing radiographs are best for diagnostic purposes; bisecting angle periapical surveys and panoramic radiographs are generally unsatisfactory.

The earliest change seen secondary to traumatic occlusion is widening of the periodontal membrane space (PDM) at the cervical one-third of the root (Fig 1) and in furcations of multi-rooted teeth (Fig 2). Where severe trauma is present, PDM widening may be seen at the cervix and apex or all around the root.[2]

Evidence of attrition and faceting associated with bruxism and other habits may be seen on radiographs (Fig 3). A lack of coarse, tough, abrasive foods in the diet makes marked attrition secondary to functional activity unlikely since facets are produced by repetitive tooth-to-tooth contacts usually not found with chewing; thus their presence indicates bruxism.[3]

The presence of residual mammelons on anterior teeth suggests anterior open bite, usually in association with a tongue thrust (Fig 4). The significance is two-fold: firstly, habitual tongue activity may produce traumatic changes in the supporting structures; secondly, anterior open bite often means that there is no anterior guidance and that posterior balancing and protrusive interferences will be present.

Although traumatic occlusion alone does not cause irreversible loss of supporting bone, its presence in an area of pre-existing inflammatory destructive periodontal disease frequently produces a characteristic pattern of bone resorption. The presence of localized angular, vertical or crater-form osseous defects suggests that traumatic occlusion is a significant secondary etiological factor in the periodontal disease process[2] (Fig 5)

Fig 1 Widening of periodontal membrane space at cervical one-third of the root. Also attrition and faceting of incisal edges.

Fig 3 Attrition and faceting of incisal edges.

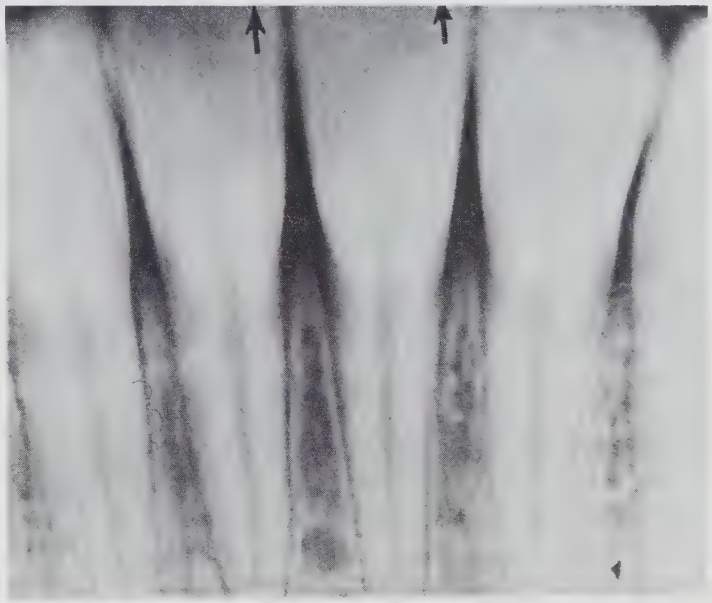


Fig 4 Residual mammelons associated with anterior open bite

Fig 2 Widening of periodontal membrane space in molar bifurcation.

Fig 5 Localized angular periodontal osseous defect.

Clinical Examination

Temporomandibular joints

The temporomandibular joints (TMJs) are examined by palpation and inspection. Bilateral palpation, as the patient opens and closes and moves laterally, may reveal tenderness, irregular movement, limitation of movement or presence of tactile fremitus. These findings are suggestive of altered muscle activity and joint function secondary to occlusal parafunction.

Muscles of mastication

The muscles of mastication are palpated during various mandibular excursions. Temporalis and masseter muscles are palpated extra-orally and bilaterally; medial and lateral pterygoid muscles are palpated intra-orally and unilaterally. Tenderness to palpation of the lateral pterygoid muscle, which can be felt posteriorly and superiorly to the maxillary tuberosity, is frequently found associated with muscle spasm and fatigue secondary to occlusal parafunction.[4] This muscle, which is the prime protractor and opener of the mandible, has two parts: the superior sphenomeniscus portion which inserts into the TMJ capsule and meniscus; an inferior portion which inserts into the neck of the condyle. Because of this intimate anatomical association with joint structures, much "TMJ pain" is undoubtedly myofacial pain involving the lateral pterygoid muscles. Tenderness to palpation of other muscles of mastication is also indicative of muscle spasm secondary to non-functional activity.

Intra-oral soft tissues

Intra-oral soft tissues are inspected for signs of trauma and altered muscle function. When lip, cheek or tongue biting is present, various lesions may be seen which vary from localized traumatic petechiae to gross maceration of oral mucosa (Fig 6). Linea alba, buccal mucosal ridging and scalloping of lateral tongue margins suggest persistent muscle activity which presses the involved tissues against the teeth.[4]

Teeth

The teeth are inspected for abnormal or excessive wear of the tooth crowns and tested for mobility and percussion. Facets in locations where functional contacts do not occur are a sign of bruxism. Sensitivity to percussion of several teeth suggests an occlusal abnormality. Localized mobility, particularly in the absence of supporting bone loss, indicates traumatic occlusion.

Occlusal contacts

The initial step in evaluating occlusal contacts is to determine whether there are premature occlusal contacts in centric relation (CR*) and a subsequent slide-in-centric. This can be done by covering the maxillary teeth with strips of 28 gauge green casting wax and having the patient moisten the wax with his tongue (Fig 7). The anterior aspect of the mandible is grasped with the right thumb on the incisal edges of the anterior teeth and the index finger beneath the chin. The left thumb and index finger are placed on the buccal surfaces of the maxillary posterior teeth (Fig 8). The patient is instructed to swallow so that CR is approximated. The mandible is then gently "jiggled" to the point where intitial occlusal contact is felt. At the beginning of the "jiggling" movement, the fingers and thumbs are interposed between the dental arches. This, plus having the tongue moisten the eax, tends to erase muscle memory — the ability of the masticatory muscles to remember the location of centric occlusion (CO). Once the teeth have been tapped in CR, perforations in the wax can be noted when the wax is held up to a light (Fig 9), or an indelible pencil can be used to mark the teeth through the wax. This locates the centric prematurity which is an unstabe, premature contact on an inclined plane in CR. The process of wax application and closing is repeated and, when initial contact is made, the patient is instructed to "squeeze together"; this will register the slide from CR to CO (slide-in-centric). The length and direction of the slide-in-centric should be recorded. A common finding when attempting to locate centric prematurities is muscle splinting — an attempt by the masticatory muscles to immobilize the mandible and prevent uncomfortable CR contacts. Use of wax and fingers tend to erase muscle memory and minimize muscle splinting effect.

Lateral and protrusive contacts are marked by drying the teeth and placing two sheets of articulating paper between the maxillary and mandibular teeth. The patient is instructed to close, move right and left, forward and backward, and chew the paper. As the mandible goes through the various excursions, the teeth are palpated with index finger and thumb. Tooth mobility and smoothness of excursions should be noted. When teeth are marked, inspection of marking location will reveal tooth-to-tooth contacts and their significance. When maxillary teeth are in their customary position overlapping mandibular teeth, the following contacts are seen:

1. *Supporting cusps* are mandibular buccal and maxillary palatal cusps and mandibular incisal edges.
2. *Centric stops* are on marginal ridges and in or adjacent to central fossae on posterior teeth and on lingual surfaces of maxillary anterior teeth.
3. Contacts on palatal slopes of maxillary buccal and palatal cusps and buccal slopes of mandibular buccal and lingual cusps are *working contacts*.
4. Contacts between centric stops and cusp tips on maxillary palatal cusps and mandibular buccal cusps are *balancing contacts*.
5. Contacts between centric stops and maxillary incisal edges are *anterior protrusive contacts*.
6. Contacts beginning at centric stops or supporting cusps and extending anteriorly (maxillary) and posteriorly (mandibular) are *posterior protrusive contacts*.

Significance of occlusal contacts

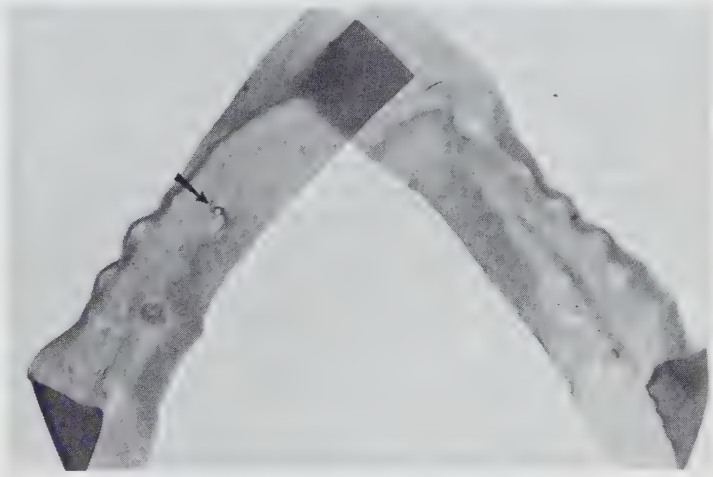
Unstable premature contacts on inclined planes in CR (centric prematurities) contribute to swallowing aberrations and centric bruxism.[6,7] When present, they should be noted

Fig 6 Traumatic lesions associated with accidental tongue biting.

Fig 8 Fingers and thumbs interposed between the teeth as mandible is manipulated.

Fig 7 Strips of 28 gauge casting wax cover maxillary teeth.

Fig 9 Perforation of wax locating premature contact in centric relation (arrowed).



as to teeth in contact and nature of slide-in-centric (length-direction). When occlusal adjustment is indicated, centric prematurities and slides-in-centric are eliminated.

Balancing side contacts in the natural dentition are interferences. They often cause altered muscle contraction patterns and predispose to bruxism and traumatic occlusion.[6,7] If possible, when occlusal adjustment is done, they should be eliminated.

Evaluation of working and protrusive contacts is more difficult since some working and anterior protrusive guidance is necessary and desirable in the natural dentition. Contacts that interfere with or preclude smooth, harmonious gliding movements of the mandibular teeth over the maxillary teeth are interferences.[1] Contacts that are associated with traumatic changes are also interferences and should be eliminated when occlusal adjustment is done. Therefore, it is necessary to consider mobility patterns, supporting bone defects, pulpal status, attrition and faceting, and audible fremitus when determining the nature of working and protrusive contacts.

Posterior crossbites in the natural dentition present few problems in evaluation or management, although slightly different rules for interpretation of contacts and for correction of occlusal interferences are applicable. Anterior crossbites, anterior open bites, deep overbites and long overjets present functional and parafunctional problems which are orthodontic in nature.

* Centric relation is the most retruded ligamentous position of the mandible. Centric occlusion is the position of habitual maximal tooth contact.[5]

Dr. Oles is associate professor, Department of Oral Diagnosis and Oral Medicine, University of Kentucky College of Dentistry, Lexington, Kentucky 40506, U.S.A.

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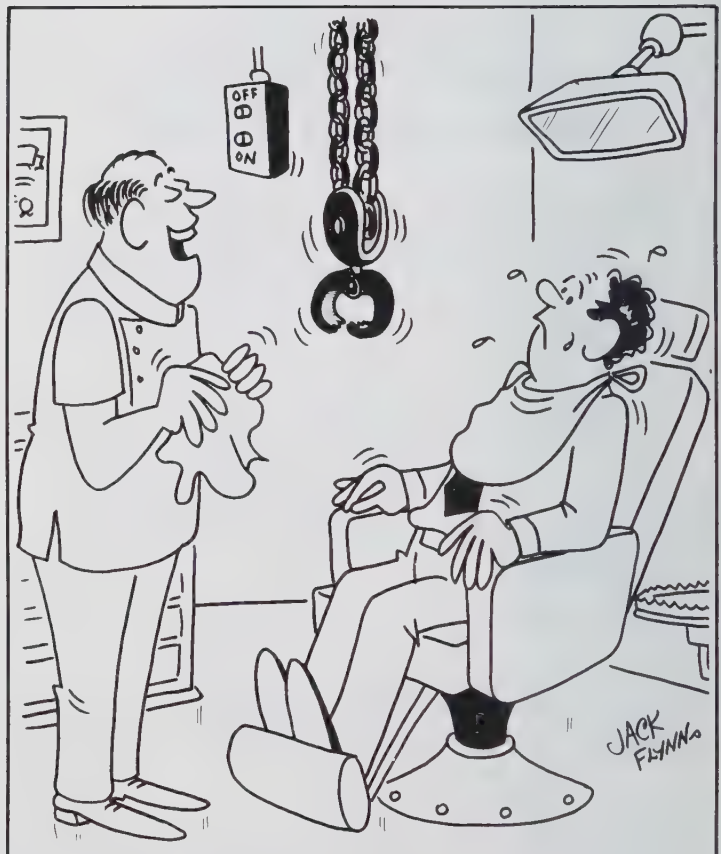

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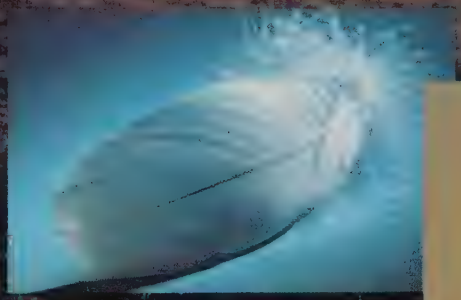

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Canadian Dental Association/Association Dentaire Canadienne

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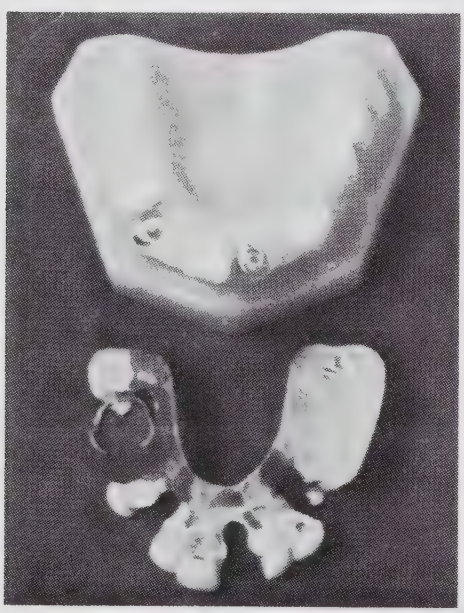

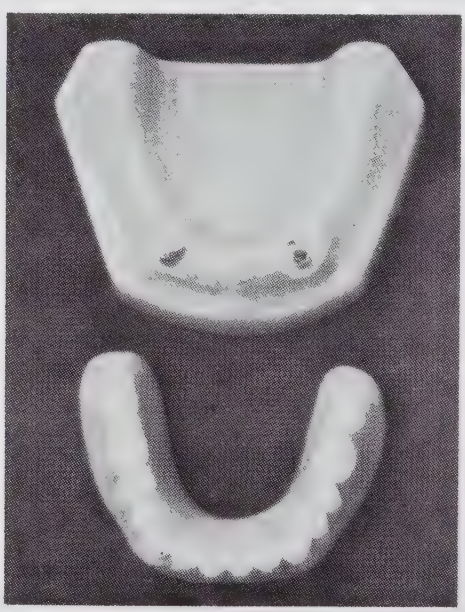

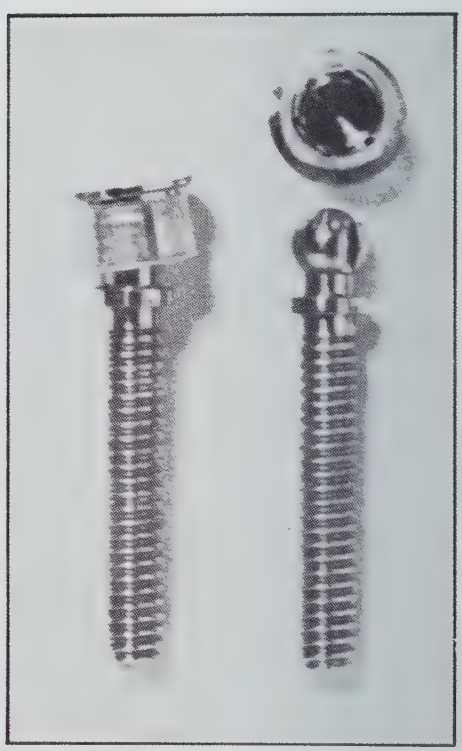

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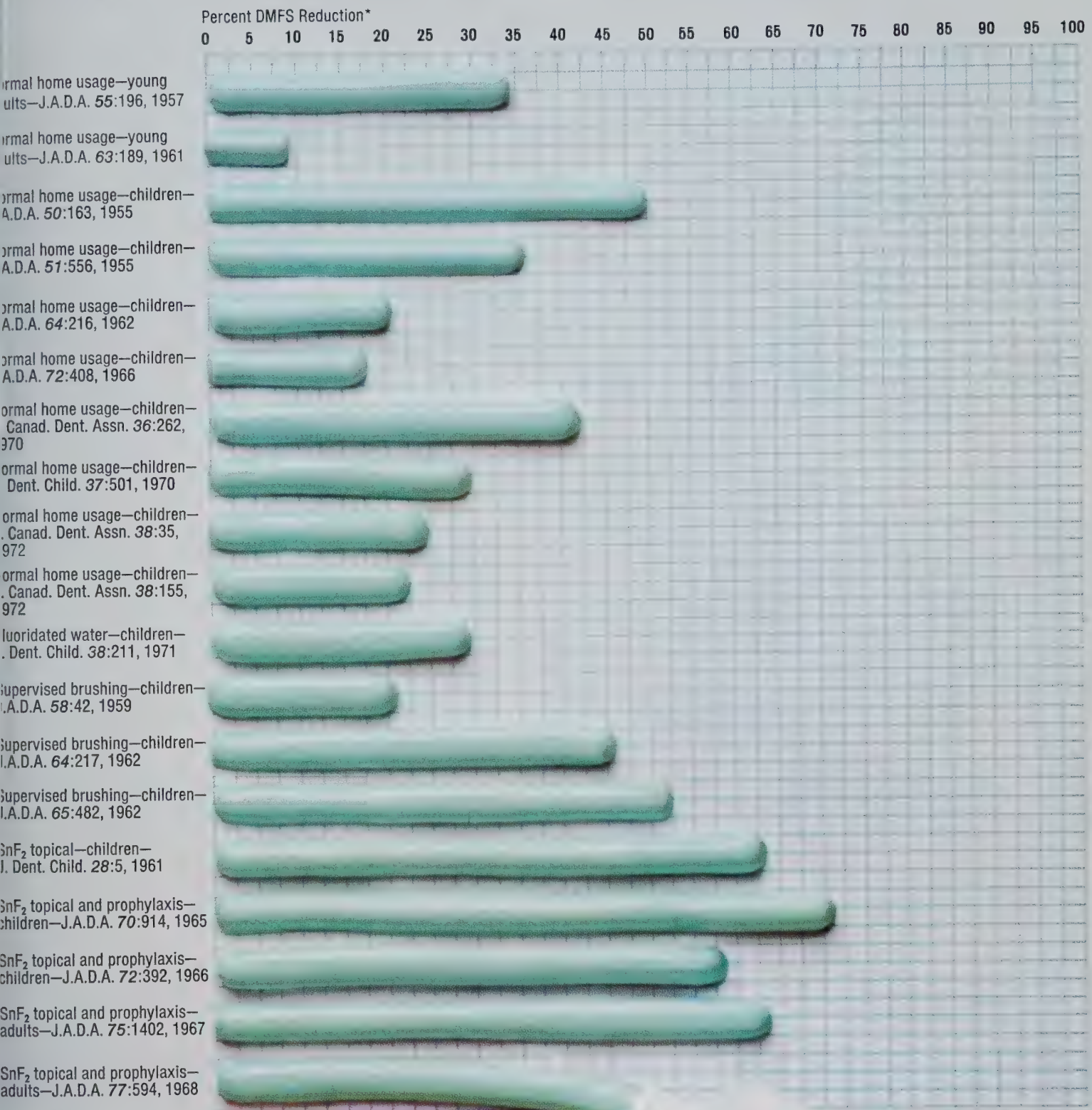

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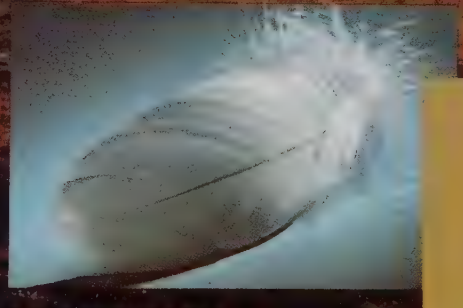

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We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13.
Contact: Dr. Ralph Crawford, Convention Chairman, Manitoba Dental Association, 308 Kennedy Street, Winnipeg, R3B 2M6.

Canadian Meetings

Vernon Ski Seminar, Vernon, British Columbia, March 3-5. 1978. The University of British Columbia will offer a choice of three courses for the dentist during this seminar. Courses deal with endodontics, paedodontics and periodontics. Contact: Continuing Education in the Health Sciences, IRC Room 105, University of British Columbia, Vancouver, B.C. V6T 1W5.

1978 Annual Teaching Conference, jointly sponsored by the Association of Canadian Faculties of Dentistry and the Canadian Dental Association, at CDA Headquarters, 1815 Alta Vista Drive, Ottawa, Ontario, March 27, 1978. Topic is ''Hospital Dentistry''. Contact: Dr. R.I. Brooke, Conference Chairman, Faculty of Dentistry, University of Western Ontario, London, Ontario, N6A 5B7.

Alpha Omega Dental Fraternity Ladies' 9th Annual Art Show Sale and Auction, Edwards Gardens, Toronto, April 15-16, 1978. Featuring Ken Danby, Glen Loates, A. J. Casson, G. Iskowitz, R. Letendre, N. Morrisseau, etc. Proceeds in aid of Dental Education. For information, contact: Mrs. P. Chapnick (416) 223-5478.

Ontario Dental Association and the Dental Society of the State of New York, Joint Convention, Sheraton Centre, Toronto, May 14-17, 1978. Contact: Mrs. W.C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Canadian Academy of Periodontology/ Quebec Association of Periodontists, Annual Meeting, Hotel l'Esterel (Laurentians), May 26-28, 1978. Speaker, Dr. Fermin Carranza of California. Contact: Dr. M. Stutman, 4141 Sherbrooke St. West, Suite 535, Montreal, Quebec, H3Z 1B8.

Les Journées Dentaires du Québec, Quebec Hilton Hotel, Quebec City, May 28-31, 1978. Contact: Dr. R.M. Lang, 5171 Decarie Blvd., Montreal, Quebec H3W 3C2.

Fourth Canadian Cleft Palate Conference, University of Western Ontario, London, June 16-17, 1978. Contact: Dr. R. Latham, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Atlantic Provinces Dental Convention, Charlottetown, Prince Edward Island, July 2-5, 1978. Contact: Dr. David O'Connell, 13 Green Leaf Drive, Sherwood, Prince Edward Island.

Pacific Dental Federation Convention, Vancouver, July 23-26, 1978. Contact: Dr. Ken Neuman, President, Pacific Dental Federation, 1125 West 8th Avenue, Vancouver, British Columbia V6H 3N4.

International Meetings

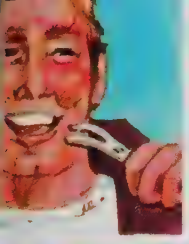
Thomas P. Hinman Dental Meeting, sponsored by the Fifth District Dental Society of Georgia, Marriott and Hilton Hotels, Atlanta, Georgia, March 18-22, 1978. Contact: Dr. Ronald E. Goldstein, General Chairman, Hinman Dental Meeting, 615 Peachtree Street, N.E., Suite 915, Atlanta, Georgia 30308. Telephone: (404) 874-9855.

British Society of Periodontology, International Conference on ''The treatment of advanced periodontal disease'', Europa Hotel, London, England, April 3-4, 1978. Contact: J.S. Zamet, President, British Society of Periodontology, University College Hospital, Dental School, Mortimer Market, London, W.C.I.

American Association of Endodontists, 35th Annual Session, MGM Grand Hotel, Las Vegas, Nevada, April 12-16, 1978. Contact: American Association of Endodontists, P.O. Box 11728, Northside Station, Atlanta, Georgia 30355.

British Dental Association, 1978 Annual Conference, Birmingham, England, April 14-17, 1978. Contact: British Dental Association, 64 Wimpole street, London, W1M 8AL, U.K.

California Dental Association, Scientific Session on ''Quality of Life'', Anaheim, California, May 5-8, 1978. Contact: Steven Badolato or Geraldine Reeve, California Dental Association, P.O. Box 91258, Los Angeles, Califórnia 90009.



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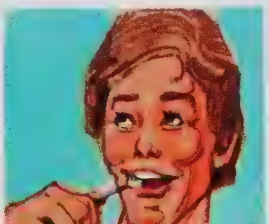

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Circulo Odontologico Del Sur (Southern Argentina Dental Society), Second International Congress and Third Socio-Economic Congress, Bahia Blanca, Argentina, May 25-28, 1978. International lecturers will deal with all clinical specialties. Contact: Dr. R.L. Ellis, Associate Professor, Department of Community Dentistry, University of Toronto, Faculty of Dentistry, 124 Edward St., Toronto, M5G 1G6.

Congresso da Conferação Latino-Americana de Protesistas Dentais, Convention Hall of Anhembi Park, São Paulo, Brazil, July 8-14, 1978. Contact: X Congresso da Confederação Latino-Americana de Tecnicos Dentais, 01302 Rua da Consolacao, 2416, São Paulo, Brazil.

New Zealand Dental Association, 9th Biennial Conference, Christchurch, August 21-24, 1978. Contact: H.G. Knowles, Honorary Secretary NZDA Biennial Conference Committee, P.O. Box 1301, Christchurch, New Zealand.

11th International Congress of Nutrition, Rio de Janeiro, Brazil, August 22 - September 1, 1978. Contact: Dr. J.A. Campbell, Treasurer, International Union of Nutritional Sciences, 1785 Riverside Drive, Suite 2204, Ottawa, Ontario K1G 3T6.

European Meeting of Oral Pathology, Amsterdam, August 29 - September 1, 1978. An advanced course in clinical and histological oral pathology. Contact: Miss R. Mooijen, Department of Oral Pathology, Free University, De Boelelaan 1117, Amsterdam, the Netherlands.

International Association on Dentistry for the Handicapped, 4th International Congress, London, England, September 12-15, 1978. Contact: Conference Office, 4th ICDH, Dental School and Hospital, University of Birmingham, St. Chad's Queensway, Birmingham B4 6NN, England.

European Association for Maxillo-Facial Surgery, 4th Congress, Venice, Italy, September 25-30, 1978. Contact: Maxillo-Facial and Stomatology Department, "S. Bortolo" Regional Hospital, 36100 Vicenza, Italy.

Fédération Dentaire Internationale, 66th Annual World Dental Congress, Madrid, Spain, September 25-30, 1978. Contact: FDI Headquarters Office, 64 Wimpole Street, London, W1M 8AL, U.K.

Second International Prosthodontic Congress, Las Vegas Hilton Hotel, Las Vegas, Nevada, October 19-21, 1978. Contact: American Prosthodontic Society, 919 North Michigan Avenue, Suite 2108, Chicago, Illinois 60611.

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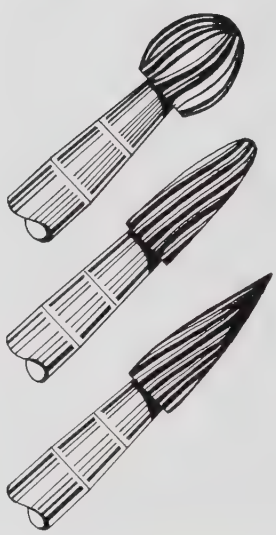

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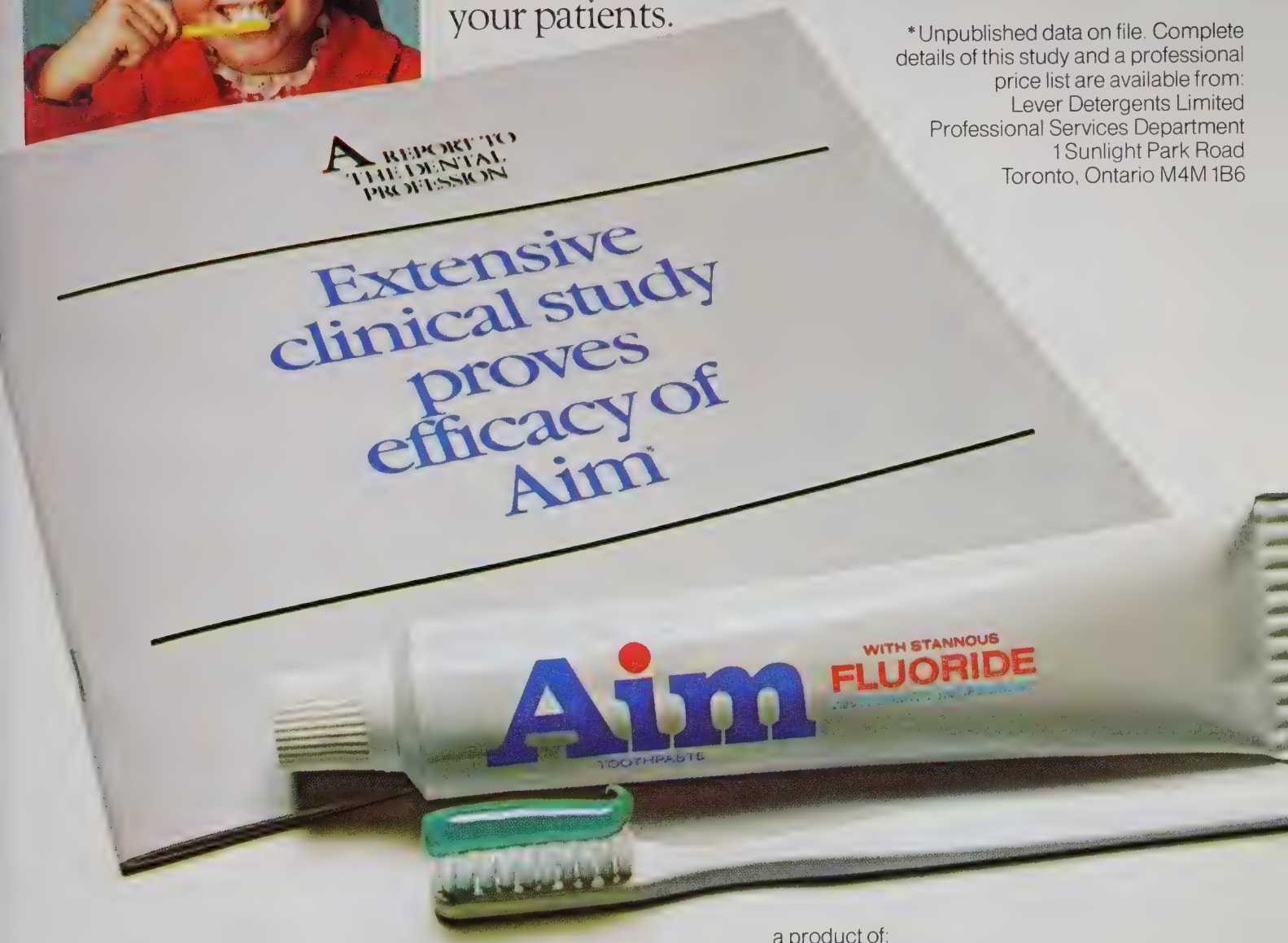

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CDA HOSTS "WELCOME TO THE PROFESSION" RECEPTIONS

In late September and throughout October, the Canadian Dental Association visited the Canadian faculties of dentistry to host "Welcome to the Profession" receptions for all dental students in all years of dental study.

The intent of these receptions was three-fold:
(1) to promote liaison between the CDA and all Canadian dental students
(2) to encourage student membership in the Association
(3) to recognize the efforts of the 1976-77 CDA student representative at each dental faculty for encouraging student participation and membership in Association activities

The format of the receptions varied somewhat from school to school but for the most part, late afternoon wine and cheese receptions were held. The CDA Governor from that province or region was asked to say a few words to the students about the association and its relation to dental students. The Governors spoke about the new and increasingly important role which dental students will be playing in association activities. Commencing in 1978, student representatives elected at the 1977 Canadian Dental Students' Conference will serve on the new CDA Council on Student Affairs. The formation of this new Council will significantly increase both the status and importance of student input in association activities.

Each CDA Governor was joined in his presentation by a representative(s) of the provincial association and Linda Teteruck, CDA Director of Student Affairs. Many of the provincial associations also very generously co-sponsored the receptions.

It also was the pleasant duty of the Governor to present to the 1976-77 CDA Student Representative an attractive plaque in appreciation and recognition of his work on our behalf. The position of CDA Student Representative at each dental faculty is an elected post from within the school. The representative should be a third year student who is familiar with both the Canadian Dental Association and organized dentistry in Canada. It is his direct responsibility to represent the association to his fellow students, to promote student membership within the association, to inform the student body about all CDA and CDA-related events, etc., to represent his student body at the annual Canadian Dental Students' Conference, and to liaise with the CDA.

Needless to say, the role of CDA Student Representative is both an active and time consuming responsibility, and certainly deserving of recognition by the Association.

As a first time endeavour, the CDA student receptions were met with enthusiasm and interest by the students. It is estimated that between 60 and 85 per cent of the total student body was present at each reception. Students were provided with an opportunity to relate on a personal level with their CDA Governor and to question all the delegates about organized dentistry in Canada.

It is hoped that the "Welcome to the Profession" receptions will become a yearly event at the dental faculties and that the provincial associations will join with the CDA in encouraging student response and involvement at both the national and provincial levels.

CONTINUING DENTAL EDUCATION COURSE

The University of Toronto's Faculty of Dentistry will present a continuing dental education course on operative dentistry. Date of this course has been changed to May 10-12, 1978.

This program will be directed towards basic operative procedures utilizing cast gold, silver amalgam and resin systems. Included in the course content will be the material science governing the selection of the restoration itself, biology of the dental tissues as related to operative treatment, soft tissue management for impression taking and temporization, as well as cavity design and selection for basic tooth treatment procedures.

The course will be under the general direction of Professor A.B. Hord. 24 Credit Hours A.G.D. Enrolment limit: 15; tuition fee: $150.00.

Please make your cheque payable to the University of Toronto and send to: Dr. G.S. Beagrie, Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, Ontario, Canada M5G 1G6.

Quebec Dental Surgeons Association

Dr. Claude Chicoine, president and executive director of the Quebec Dental Surgeons Association, has announced the recent election of Dr. Yves Tellier to the chairmanship of the Board of Directors of this professional negotiating body which represents the majority of the dentists of the Province of Quebec.

Also elected to the executive council for the 1977-78 term of office were: Dr. Yves Giguere, Dr. Jean-Pierre Martel, Dr. Denis Veillette, Dr. Henri Marsolais and Dr. Jácques Coderre.

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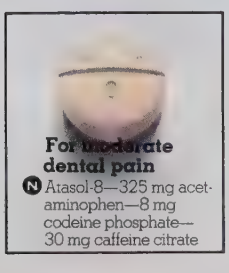
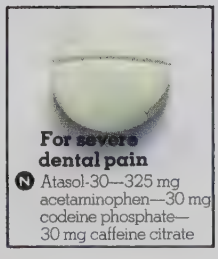
For mild dental pain
Atasol Forte—500 mg acetaminophen



For moderate dental pain
Ⓝ Atasol-8—325 mg acetaminophen—8 mg codeine phosphate—30 mg caffeine citrate



For severe dental pain
Ⓝ Atasol-30—325 mg acetaminophen—30 mg codeine phosphate—30 mg caffeine citrate

HORNER
Montréal, Canada

*ASA is known to interact with: non-systemic antacids, oral anticoagulants, ß-adrenergic blocking drugs, corticosteroids, oral hypoglycemic drugs. Also furosemide, indomethacin, insulin, phenylbutazone, phenytoin.

**It has been reported that acetaminophen potentiates the action of warfarin-type anticoagulants if administered several times daily over a two-week period.

PAAB
CCPP

MARCH 1, 1978 IS DEADLINE FOR CFDE TEACHER TRAINING FELLOWSHIP APPLICATIONS

The Canadian Fund for Dental Education has announced that applications are now being accepted for teacher/researcher training fellowships for the 1978/79 academic year.

The deadline for filing applications is March 1, 1978. Forms and additional information may be obtained from the dean's office in any Canadian dental school or the Canadian Fund for Dental Education, Suite 205, 44 Eglinton Avenue West, Toronto, Ontario M4R 1A1.

Conditions

Candidates must be Canadian citizens or landed immigrants who have completed an undergraduate course in dentistry, dental hygiene or a program in science and be eligible for admission to a graduate school.

Applicants must declare their firm intention to become a teacher and/or researcher in a Canadian faculty of dentistry or a school of dental hygiene. Preference will be given to those applicants who will return to a *full-time* teaching/research position. Minimum commitment in this regard is two days per week. A fellowship recipient is obligated to give a year's full-time service to a school for each year of full fellowship support, or a year's half-time service for each year of half fellowship support. In rare instances where teaching commitments are not fulfilled, fellowship awards must be repaid in full.

Each fellowship is for one year of study at the graduate level. The fellowship may be renewed if progress is satisfactory.

Two types of fellowships are awarded annually:

(a) **CFDE Full Fellowship** — awarded to applicants who have either a legal or a strong decanal commitment for full-time employment after training.

(b) **CFDE Half Fellowship** — awarded to applicants who have either a legal or a strong decanal commitment for half-time employment after training or to applicants who are enrolled in a basic science program (which is only of monetary value if the student obtains university employment after training).

The value of the fellowships will be determined annually by the Advisory Committee on Fellowship Selection and the Board of Trustees.

It is understood that CFDE fellowship recipients will have to obtain additional support from other sources to completely finance their studies. However, no CFDE fellowship is tenable in addition to a major award (usually in excess of $8,000).

Since the program was started in 1964, the Fund has awarded 177 fellowships totalling $467,396 to 115 dentists to help them pursue teaching/research careers. 22 fellowships totalling $26,531 have also been awarded to assist 17 dental hygienists to prepare for teaching careers in Canadian schools.

$1,500 CFDE FELLOWSHIP FOR UNIVERSITY DENTAL TEACHER

The Canadian Fund for Dental Education invites applications from dental teachers for the 1978 fellowship sponsored by Warner-Lambert Canada Limited. March 1, 1978 is the deadline for filing applications.

According to CFDE Trustee Dr. James A. Guest "the purpose of the award is to provide an opportunity for an established teacher in one of the Canadian schools of dentistry to refresh and extend his/her knowledge in any field of dental education or research."

Candidates must be full-time members of the teaching staff of one of the Canadian schools of dentistry with a minimum of five years university teaching experience.

The proposed program of study must be well defined and minimally it must be of approximately one month's duration. Application by letter giving complete details of the proposed program of study should be sent to the Canadian Fund for Dental Education, Suite 205, 44 Eglinton Avenue West, Toronto, Ontario M4R 1A1, to arrive no later than March 1, 1978. It should be accompanied by a curriculum vitae and a letter of support from the applicant's dean or other appropriate senior university official indicating approval of the study period and its benefits to the university and the individual staff member.

Upon completion of the study period CFDE will require a written report on the experience.

Full particulars of the fellowship may be obtained from the office of the dean in each dental school or the Canadian Fund for Dental Education.

All applications will be carefully reviewed by CFDE's Advisory Committee on Fellowship Selection and the award winner selected for the approval of the Board of Trustees.

Since 1971 this fellowship has been sponsored annually by Warner-Lambert Canada Limited.

CDA Board of Governors Meeting

The Board of Governors of the Canadian Dental Association will hold an interim meeting March 13 and 14, 1978, at the Chateau Laurier Hotel in Ottawa.

Tools of the Trade

Colgate's Special MFP Fluoride provides continuing protection against cavities between check-ups.

The fluoride treatment you give gets your patients off to a good start. But it's important that they brush with an effective fluoride toothpaste, like Colgate,* so they're fighting cavities between check-ups too.

Our clinical tests show that the regular use of Colgate with MFP fluoride alone significantly reduces the number of new cavities. Used in conjunction with your topical fluoride application, it follows that there should be an even greater reduction of cavities.

How does Colgate's special fluoride MFP fight decay? We believe that MFP* (sodium monofluorophosphate) is effective in converting the surface layer of apatite (calcium hydroxyphosphate) into fluorapatite (a calcium fluorophosphate) thus making the tooth more resistant to decay.

Colgate's MFP is stable. Even after three years the sodium monofluorophosphate is still present and able to react with tooth enamel.

And it's reassuring to know that staining of teeth, a problem associated with some dentifrices is not a problem with Colgate's MFP.

You might remind your patients how important it is to back-up your fluoride protection...with the kind that Colgate's special MFP fluoride provides.

CANADIAN DENTAL ASSOCIATION RECOGNIZED

"Colgate has been shown to be an effective decay-preventive dentifrice that can be of significant value when used in a conscientiously applied programme of oral hygiene and regular professional care."
Canadian Dental Association.

*TM

Colgate-Palmolive Canada.

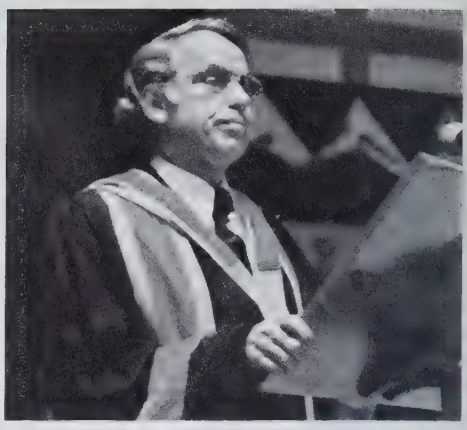
UNIVERSITY OF ALBERTA CELEBRATES GOLDEN JUBILEE DENTAL CONVOCATION

The double commemoration of the founding of the University of Alberta's dental school in 1917 and the fiftieth anniversary of its first graduating class in 1927 was celebrated on November 26, 1977. The celebration consisted of scientific lectures, a jubilee luncheon and a special convocation ceremony at which three honorary degrees were awarded.

The morning sessions were devoted to scientific lectures delivered by Dr. Cosmo Castaldi, professor and head of pediatric dentistry at the University of Connecticut, and a former professor of pedodontics at the University of Alberta. His topic was "Challenges in Adolescent Dental Care". Of special significance was the subsequent inaugural James McCutcheon Memorial Lecture, established in the name of a former dean of dentistry who died in office in December 1976. The first lecture in this series was delivered by Dr. Gordon Nikiforuk, professor of preventive dentistry at the University of Toronto, and a former dean of dentistry at that University. The topic of his address was "Health By and For the People", and dealt with the current state of health care systems in Canada.

The golden jubilee luncheon, attended by over 300 people, was a highlight of the celebrations. The luncheon was hosted by the Alberta Dental Association who had as their guests representatives of the Department of Advanced Education and Manpower of the Province of Alberta, of the Canadian Dental Association, of the Association of Canadian Faculties of Dentistry and the Deans of the Dental Schools of McGill University, Montreal, and of the Universities of Western Ontario and Manitoba, and the newly-appointed dean-elect of the Faculty of Dentistry at the University of Alberta and current associate dean at the University of Toronto, Dr. Gordon Thompson. A member of the first graduating class of 1927, Dr. G.D. Sutherland, was present at the luncheon.

Greetings to the dental school were brought by Dr. Harry Gunning, President of the University of Alberta, by Dr. Van E. Christou, Chancellor of the University of Lethbridge, by the above-mentioned representatives, and by the Alberta Dental Association, whose president, Dr. Gordon Anderson, announced that the A.D.A. was presenting the Dental School with a Golden Jubilee gift of a pair of African elephant tusks as an example of the biggest teeth available. Dr. Donald Collinson, acting dean of the Faculty of Dentistry, responded to the greetings and expressed thanks to the university officials and organizing committee chaired by Dr. Jack Calvert. The guest speaker at the luncheon was Mr. Ronald Dalby, Chancellor of the University of Alberta, whose theme was the delivery of dental care services.

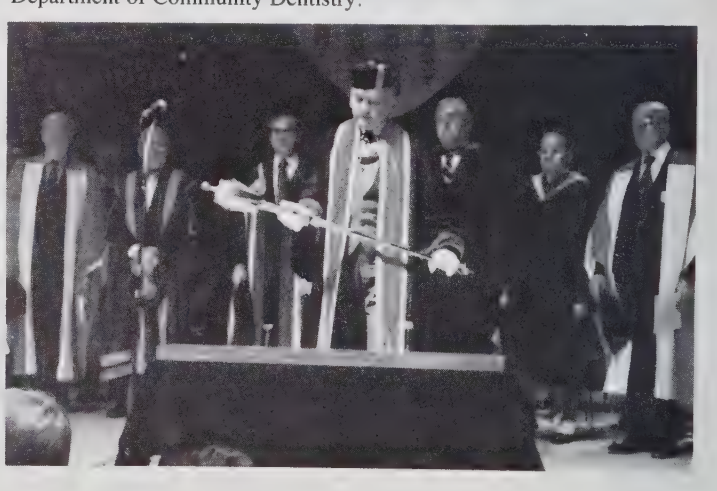


Dr. W.J. Dunn, Dean of the University of Western Ontario's Faculty of Dentistry and President of the Association of Faculties of Dentistry, addressing the Convocation.

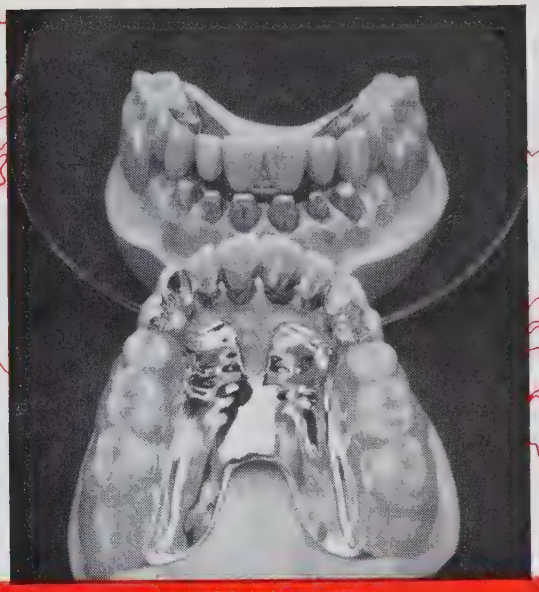
The afternoon was devoted to the Special Convocation ceremony staged by the University of Alberta in the Student's Union Building Theatre and attended by approximately 400 people. A formal academic procession preceded the invocation, after which the President of the Association of Canadian Faculties of Dentistry, Dr. W.J. Dunn delivered greetings. The conferment of the degree Doctors of Laws, honoris causae, by the Chancellor of the University upon Dr. William Scott Hamilton, Dr. James Zimmerman and Dr. Hector Robertson MacLean was the culmination of the convocation ceremony. Dr. MacLean, a graduate of the second class of dentists from the University of Alberta and a former dean of dentistry at the university, delivered the convocation address, in which he outlined a personal history of the dental school and a commentary on the status of professionals in current society.

The capping of Dr. H. MacLean as Honorary LLD graduate by Mr. D. Burns (left), Assistant Registrar, and being inducted by Mr. R. Dalby, University Chancellor.

Setting the University Mace prior to the Golden Jubilee Convocation is Mr. Gordon Geldart, Chief Marshal of the Convocation and Chairman of the Department of Community Dentistry.



There's a Nobilium laboratory near you



A MARI USQUE AD MARE: FROM SEA TO SEA

Wherever you practice there is a Nobilium laboratory nearby . . . ready to process your partials with the "aristocrat of chromium alloys" . . . partials that satisfy every patient desire for dependable fit, functional service, oral comfort and lifelike aesthetics. Here is the list of skilled laboratories from British Columbia to Nova Scotia equipped with the latest Nobilium equipment and materials and dedicated to serve your every requirement. Entrust your prescriptions to them with confidence.

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Duracast Dental Laboratories
8 Taber Road, Rexdale

Hirsh Dental Laboratories Limited
495 Adelaide Street West

Modent Dental Laboratory
881 Eglinton Avenue West

Pearce Dental Lab
250 Lawrence Avenue West

The Posen & Furie Dental Laboratories Limited
1366 Bathurst Street

Walter Wood Dental Laboratories
527A Bloor Street West

ONTARIO — HAMILTON

Allen & Rollaston Dental Laboratory
Medical Art Bldg., Hamilton 20

ONTARIO — St. CATHARINES

J. W. Birnie Dental Lab.
206 King Street

ONTARIO — CAMBRIDGE

Achmann Dental Lab.
87 Grand Ave. South

ONTARIO — ORILLIA

Orillia Dental Laboratory
225 West Street North

ONTARIO — OSHAWA

Multi-County Dental Laboratories
172 King Street East

BRITISH COLUMBIA — VANCOUVER

Northwest Dental Laboratories Limited
1070 Homer Street

BRITISH COLUMBIA — VICTORIA

Turner Dental Laboratory
1207 Douglas Avenue, Suite 521

NOVA SCOTIA — AMHERST

Walter Horton Dental Laboratories Limited
31 La Planche Street

ALBERTA — CALGARY

Pro-Dent Lab. Ltd.
6707 Elbow Drive S.W.

Frame Master Lab.
339 - 6th Avenue S.W.

MANITOBA — WINNIPEG

Associated Crown & Bridge Laboratory, Limited
201 - 407 Graham Ave.

Manitoba Dental Labs.
333 Kennedy St.

ALBERTA — EDMONTON

Northwest Dental Laboratory
10540 - 115th Street

Universal Dental Laboratories Ltd.
10066 Jasper Avenue

New-Johnston Dental Labs.
10202 - 102 Street

SASKATCHEWAN — SASKATOON

Aurum Crest Dental Laboratories Ltd.
336 - 6th Ave. North

QUEBEC — STE. THERISE

Lafond & Joly Dental Lab.
94 Blainville Quest

QUEBEC — GRANBY

Julien-Ste. Jean Dental Lab.
356 Rue Principale

QUEBEC — MONTREAL

Dentarium Laboratories
6997 Victoria Avenue

Nobident Dental Laboratory
3726 Jean-Talon West

Roger Sauve Dental Laboratory
5545 Beaubien Est

QUEBEC — QUEBEC CITY

G. Garneau Dental Lab.
386 Dorchester, Sud

NOBILIUM PRODUCTS OF CANADA, LIMITED 1366 BATHURST STREET, TORONTO 4, CANADA

DALHOUSIE PROFESSOR AWARDED GRANT

Dr. Bernard Lilienthal, professor of oral biology, at Dalhousie University, has been awarded a $57,500 research grant by Health and Welfare, Canada, to study the relation between a variety of trace elements in water and foods and dental caries.

The research team includes clinicians Dr. Jack Hann and Dr. Murray Kronis of the Division of Community Dentistry, a nutritionist and an analytical chemist. The Environmental Chemistry Laboratory, Dr. D.J. MacKenzie Laboratories, Victoria General Hospital, Halifax, is cooperating in aspects of the trace element analyses.

The investigations will be centred in the towns of Amherst, Truro and Yarmouth, where the water supplies contain low fluoride levels and differ greatly in other trace elements — for example, copper. Evidence has been accumulating slowly that dental caries prevalence in children differs greatly in different geographic regions and these differences do not appear to be explained by different eating habits or fluoride content of drinking water. In one such instance in New Zealand, the difference in dental caries prevalence seemed to be associated with the element molybdenum in home-grown vegetables in a region where the soils were richer in this element as a result of earthquake activity. Another beneficial effect of a trace element related to dental caries is the recently studied effect of strontium which was found in greater concentration in the outer layer of dental enamel of teeth of caries-free residents of certain towns in Northern Ohio where the drinking water contained high strontium levels.

In general, experimental studies in laboratory animals have shown beneficial results with trace levels of the elements molybdenum, vanadium, strontium and other alkaline and alkaline earth elements. Opposite effects appeared to be associated with the elements lead, copper, zinc, manganese and selenium.

However, relatively few studies have been made in man to directly evaluate the relationship between known trace elements in a water supply and the dental caries prevalence in children born and raised using that water. The Dalhousie study is planned to do this and it includes examination of three age groups of children in each town for dental caries, dietary analysis for food eating patterns and estimates of selected trace elements in food; trace element analyses of drinking water, sample diets and foods and of the surface enamel of extracted teeth. Analysis of the data obtained in this study will give a more direct assessment of the relation between selected trace elements in water and food and dental caries than has been the case in the few previous investigations.

CANADIAN SOCIETY OF ORAL SURGEONS 1977 RESEARCH AND ESSAY AWARD

During its 24th Annual convention held in Toronto, October 28-31, the Canadian Society of Oral Surgeons awarded the 1977 Research and Essay Award to Dr. Graeme Browne of Montreal and Dr. Peter Solosky of Brantford, Ontario. Dr. Browne's research paper was entitled "A comparison of the presence and behaviour of round cells in acanthosis, dyskeratosis, carcinoma in situ and sqamous cell carcinoma of the oral cavity" and Dr. Solosky's topic was "Quantitation of blood flow following anterior maxillary osteotomy: Wassmund procedure".

The purpose of this contest is to encourage and recognize outstanding clinical or basic research or an exceptional essay related to the specialty of oral surgery.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on December 31, 1977:

Common Stock Fund	$29.489
Fixed Income Fund	$20.506
Guaranteed Fund	$14.315

Total assets (market value) of the plan were $26,580,607.13.

The previous month's figures, as of November 30, 1977, stood as follows:

Common Stock Fund	$28.263
Fixed Income Fund	$20.371
Guaranteed Fund	$14.157

Total assets (market value) of the plan were $26,037,138.67.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

Bulletin

A rumour has recently spread among the members of the profession that the Program leading to the Certificate in Orthodontics at l'Université de Montréal, Faculty of Dental Medicine was to be discontinued. We would like to confirm by this announcement that such is not the case. The program is to be maintained in full activity and there is no intention to interrupt it.

Deaths

Klein, Henry, 73. Montreal, Quebec. McGill University, 1925. 1-9-77.

Leckie, Archibald Hamilton, 66. Hamilton, Ontario. University of Toronto, 1936. 7-12-77.

Miller, F.L., 72. Fredericton, New Brunswick. Dalhousie University, 1929. 12-77. Survived by Bertha (wife) and Robert (son).

Sutherland, Alexander Bruce, 77. Sudbury, Ontario. University of Toronto, 1927. 10-12-77.

T.M.S.*

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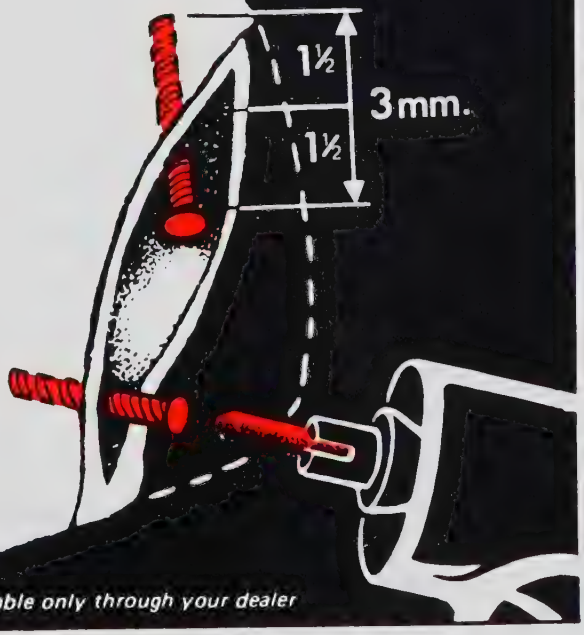

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* REGD. T.M.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 decembre, 1977:

Fonds d'actions ordinaires	$29.489
Fonds à revenue fixe	$20.506
Fonds avec garantie	$14.315

L'avoir total (valeur marchande) du régime se montait à $26,580,607.13.

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 novembre, 1977:

Fonds d'actions ordinaires	$28.263
Fonds à revenue fixe	$20.371
Fonds avec garantie	$14.157

L'avoir total (valeur marchande) du régime se montait à $26,037,138.67.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

Statistiques vitales

Un sondage effectué récemment aurpès des dentistes a révélé que 34% des dentistes s'approvisonnent actuellement chez des compagnies qui font leurs expéditions par la poste . . . et la principale raison de ce phénomène, ce sont les prix de rabais. Est-ce là une révélation stupéfiante?

Pas vraiment. Des statistiques comme celles-ci, publiées à la suite d'un sondage, on peut les comparer à un maillot de bain de femme . . . ce qu'il révèle est peut-être très intéressant, mais c'est ce qu'il cache qui compte vraiment! D'autres chiffres moins spectaculaires, mais contenus dans le même rapport, disaient tout autre chose. Près d'un tiers des dentistes qui s'approvisonnent par la poste se plaignent de la "lenteur des livraisons" et du fait qu'il y a "trop de commandes en attente". Parmi les autres plaintes, citons notamment celles-ci: marchandises endommagées en cours de transport; substitution non autorisée d'une marque à une autre, et difficulté à retourner les marchandises . . . de même que la politique des maisons de vente au rabais, basée sur le principe "pas de crédit"; enfin, en général, un manque de renseignements sur les produits.

Ces dentistes ne lisaient peut-être pas toutes ces clauses imprimées en petits caractères!

Tout bien considéré, Docteur, les économies réalisables en s'approvisionnant par la poste sont-elles réelles . . . ou illusoires?

C'est là point d'importance vitale.

DENCO

La Société dentaire de Montréal

La Société dentaire de Montréal vient d'annoncer son Conseil exécutif pour le mandat 1977-78. Les membres suivants ont été élus: Dr Michelin Blain, président; Dr Laval Couture, président-désigné; Dr Yvon Desmarais, vice-président; Dr Pierre Gascon, trésorier; Dr Richard Taché, secrétaire; Dr Michel Plamodon, trésorier-adjoint; Dr Jean-Guy Lahaie, secrétaire- adjoint; Dr Marcel Labelle, directeur du bulletin; Dr Michel Jahjah, aviseur; et les Drs Clément Rivest, Gilles Bélisle, Pierre Caty, Emmanuel Steverman et Jean Beauchemin, conseillers.

Communique

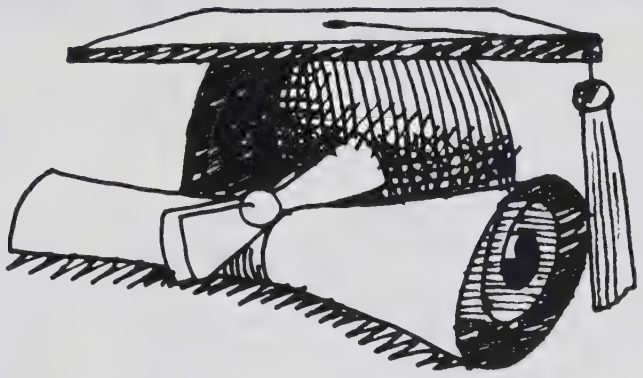
La Faculté de médecine dentaire de l'Université de Montréal désire informer les membres de la profession que, contrairement à une rumeur qui aurait pu circuler, le programme de formation dans la spécialité de l'orthodontie est maintenu.

Ce programme mène au Certificat en orthodontie lequel répond aux exigences des normes canadiennes d'accréditation.

Réunion du Bureau des Gouverneurs de l'ADC

Une réunion intérimaire du Bureau des Gouverneurs de l'Association Dentaire Canadienne aura lieu les 13 et 14 mars 1978 à l'Hôtel Château Laurier à Ottawa.

Because you are... an Educated Man



You enjoy a title of respect in an honoured profession

You enjoy a rich inheritance from educated men who preceded you

You are part of a great tradition:

As an educated man, you share a special obligation to help preserve and extend this heritage for future generations

When you give to the Canadian Fund for Dental Education you help protect the standards and prestige of your profession by supporting CFDE's programs in behalf of dental education and dental care. If you haven't given yet to CFDE this year, please mail your tax-deductible contribution to:

Canadian Fund for Dental Education,
Suite 205, 44 Eglinton Avenue West,
Toronto, Ontario M4R 1A1

cfde

CANADIAN FUND FOR DENTAL EDUCATION

Your avenue for giving, to enhance the performance and prestige of Dentistry

FEDERAL INCOME TAX RETURNS BY DENTISTS

This article was prepared by Thorne Riddell & Co., Chartered Accountants, to assist dentists in the preparation of their annual tax returns.

The time of the year is again approaching when we must set ourselves down and determine exactly what share the government will demand of our hard-earned income. The question is — do we owe the taxman, or, slightly more palatable, does he owe us.

Preparing a personal income tax return is not an enjoyable task, partly because of the psychology, and partly because of the tedious job of gathering applicable information, consolidating it, finding appropriate documentation, and finally, incorporating all the information in the tax return.

It is impossible to solve the psychological problem so this article will attempt only to guide you through the final step; that of preparing the tax return, and suggest some means which may help reduce your tax liability.

This article deals with the basic steps involved in tax return preparation. In summary the basic steps involved are: 1) calculating gross professional income from which professional expenses are deducted to arrive at net professional income; 2) determining income from other sources; 3) deducting certain amounts from the total of the above to arrive at net income. Certain other amounts are then deducted from net income to arrive at taxable income; and 4) the final calculation of taxes payable. In order that the reader may better understand the discussion, we have attempted to reference the discussion to an actual tax return copy.

At the date this article was prepared, changes to the Income Tax Act arising from the March 31, 1977 budget and subsequent adjustments were not yet law since Bill C-11 had not been passed by Parliament. This article will assume unchanged passage into law of all amendments.

The article will assume the dentist is self-employed. Certain exceptions relating to partnerships and dentists on salary will be mentioned briefly later in the article.

1. Computation of net income from self-employment

Professionals are required to compute their income on an accrual basis. In computing income under the accrual method, every amount which becomes receivable during the business' fiscal period for services rendered is included in the income of that tax year whether payment has been received or not. Similarly, all expenses incurred during the fiscal period, whether actually paid or not, are deductible in that year. A taxpayer may elect to exclude work-in-progress (a modified accrual method). The election once made is binding for all subsequent years unless it is revoked with the concurrence of the Minister of National Revenue.

The accrual method of reporting gross income for professionals was first introduced into the Income Tax Act in 1972. As a transitional provision in the conversion from a cash basis of reporting income to the accrual basis, there is a special rule for the treatment of a professional's accounts receivable outstanding at the end of 1971. For each year after 1971, the professional has been allowed to deduct a reserve for his 1971 accounts receivable equal to the lesser of:

1) the amount of the previous year's reserve for 1971 receivables.

2) the amount of accounts receivable outstanding at the end of the current period.

Each year he is required to add back the amount of the prior year's reserve and compute a new reserve for the current year.

A separate schedule should be prepared and filed with the tax return similar to the following example.

Gross Income	$60,000
Add: 1971 Accounts receivable reserve deducted in 1976	6,000
Deduct: Lesser of	
(1) 1975 reserve included in income (as above) . . . $6,000	
(2) amount of net accounts receivable at Dec. 31/76 $5,000	(5,000)
Gross Income	$61,000

(see item A on tax return)

The schedule would then continue to deduct expenses in order to arrive at net income from self-employment. (Note: the taxpayer can utilize a preprinted Form T2032 in order to calculate his net income from self-employment. These forms are available from any district taxation office.) To be deductible the expense must have been incurred for the purpose of earning income from the business, it must not be capital in nature, must be reasonable in the circumstances and have been paid or

Revenue Canada Taxation | Revenu Canada Impôt

T1-1977

10

This is your Working Copy
Please retain for your records

7 Federal and Ontario Individual Income Tax Return

ıtification

ıt Number | Social Insurance Number

For your records, please enter at the left the information as shown on the mailing copy.

● Date of Birth — Day / Month / Year

DENTAL [illegible]
124 [illegible]
TORONTO 2

◆ Province or Territory of Residence on 31st December 1977, was:

◆ If self-employed in 1977, please state province where business located

◆ On 31st December, 1977, I was: Married 1 ☐ Widow(er) 2 ☐ Divorced 3 ☐ Separated 4 ☐ Single 5 ☐

● Usual First Name of Spouse

Address of Spouse: same as mine ☐ or

name or address shown above is incorrect, print correction below.

ted Name

ted Address

Postal Code

◆ Enter spouse's Social Insurance Number shown on the label or the correct number on mailing copy

◆ If you became or ceased to be a resident of Canada in 1977, please give:
Date of Entry or Departure

f work or occupation in 1977

Name of present employer

culation of Total Income

		$	¢	
Total Earnings Before Deductions from Box C on all T4 slips (attach copy 2 of T4 slips)	01			⊙
Commissions from Box L on all T4 slips, included in above total	02			
Other employment income including adult training allowances, tips and gratuities, etc. (Guide item 3; please specify)	03			⊙
Total employment earnings (add lines 01 and 03)	04			
Subtract: Employment expense deduction (Guide item 4) If line 04 above is $8,333 or more claim $250.00 If line 04 above is less than $8,333 see Step 3 in Guide	05			⊙
Other allowable expenses (Guide item 5; please specify)	06			⊙
Total employment expenses (add lines 05 and 06)	07			
Net employment earnings (subtract line 07 from line 04)	08			
Old Age Security Pension ($1,746.84 for year; for less than year, see Guide item 6)	09			⊙
Canada or Quebec Pension Plan benefits (attach copy 2 of T4A(P) slip)	10			⊙
Other pensions or superannuation (attach copy 3 of T4A slips)	11			⊙
Taxable Family Allowance payments (Guide item 7; attach copy of TFA1 slip)	12			⊙
Unemployment Insurance benefits (attach copy 1 of T4U slip)	13			⊙
Taxable amount of dividends from taxable Canadian corporations (attach completed Schedule 4)	14			⊙
Interest and other investment income (attach completed Schedule 4)	15	C		⊙
Rental income (Schedule 7) Gross 83 / Net	16	D		⊙
Taxable capital gains (Allowable capital losses)—complete and attach Schedule 2	17	E		
Other income (Guide item 17; please specify)	18			⊙
Report both 'Gross' and 'Net'. (Guide item 18). Provide other information concerning self-employment on page 3.				
Business income Gross 84 / Net	19			⊙
Professional income Gross 85 A / Net	20	B		⊙
Commission income Gross 86 / Net	21			⊙
Farming income Gross 87 / Net	22			⊙
Fishing income Gross 88 / Net	23			⊙
otal Income (add lines 08 to 23 inclusive — please enter this amount on line 24 on page 2)	24			

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become payable in the year provided that it was not deducted in a prior year.

The expenses should be categorized as distinctly as possible, so that the sundry expense category is minimal. Documentation of the expenses should be maintained in the event that tax authorities request support for reported expenses. The following expenses are among those deductible:

1) Salaries to employees.

The names and addresses of such employees are to be furnished annually to Revenue Canada on Form T-4, Return of Remuneration Paid. These forms must be filed by the last day of February in the following calendar year. If a salary is paid to the taxpayer's spouse a deduction is not permitted but the amount received by the spouse is not included in her income.

2) Dental and like supplies.

3) Rent for business premises.

4) Telephone, postage and stationery expenses incurred in connection with professional practice.

5) Annual fees paid to professional and scientific associations or societies are deductible.

6) Business taxes.

7) Costs of leasing equipment.

8) Capital cost allowance on the undepreciated capital cost of depreciable assets of professionals. Some examples are:

a) Dental instruments costing less than $200, 100%
b) Dental instruments costing $200 or more, 20% per annum
c) Office furniture and fixtures, 20% per annum
d) Library, 20% per annum
e) Automobile used in earning income from Dental practice, 30% per annum (see 9 below)
f) Office building or portion of personal residence used as office, 10% per annum if frame construction, 5% if not (see 10 below)
g) A leasehold interest, evenly over the period of the lease plus one renewal term with a maximum of 20% per year.

9) Automobile expenses. If the dentist owns or rents an automobile and makes use of it in his professional practice, the deductible amount is normally that proportion of the total operating expenses including capital cost allowance of the automobile incurred in the year that the mileage driven for business purposes is of the total mileage for the year. Automobile expenses incurred in driving to and from work are not deductible.

10) Proportional expenses of dentists practicing from their residence may be deducted. If the dentist owns or rents a house in which he both resides and practices, he may deduct a proportion of expenses incurred or rent paid equal to the proportion the area of his office, laboratory and waiting room space is to the total area of the property. These expenses include property taxes, light, heat, insurance, repairs and interest on mortgage.

If the dentist owns the house in which he practices, he may also take capital cost allowance on the areas described above. However, caution should be exercised here, as capital gains and recapture of capital cost allowance may result on disposition of the house. This will be discussed in more detail below.

11) Contributions to employee pension, profit sharing or other benefit plans are deductible.

12) Fees of consultants.

13) Legal and accounting expenses if the expenditure is related to the earning of income.

14) Insurance premiums paid for such things as malpractice insurance, office contents and liability insurance. Personal insurance premiums such as life insurance are not allowable.

15) Interest paid on money borrowed for professional purposes.

16) Entertainment expenses are deductible if they are incurred for the purposes of earning income and are properly documented. Note that social club dues are not deductible where the main purpose of the club is to provide dining, recreational or sporting facilities for its members.

17) A reserve for doubtful debts and bad debts.

18) Sundry expenses such as magazines for your waiting room and professional textbooks purchased individually, are deductible.

19) Convention expenses. Such expenses are restricted to the expense of attending no more than two conventions in a taxation year. The dentist's attendance at the convention must be reasonable and have been for professional reasons. Also, the location of the convention must be consistent with the territorial scope of that organization holding the convention. That is, expenses incurred in attending a convention sponsored by a Canadian organization that is held outside those geographical limits will not be deductible in computing income.

The following information should be furnished:

a) the dates on or between which the convention was held, and the location thereof,
b) the number of days present at the convention, supported by a certificate of attendance from the sponsoring organizations, and
c) the expenses incurred, segregating (i) transportation expenses, (ii) meals, and (iii) hotel expenses for which vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the presence of the dentist's spouse and children accompanying him to the convention must be excluded.

The figure resulting from the deduction of the above expenses from gross income is net income from self-employment. (*Item B on tax return*)

2. Income from other sources

Along with income from his practice, the dentist is likely to have income from other sources.

a) Interest and other investment income (*Item C on tax return*). Taxpayers must complete a provided schedule in order to determine the amount of interest and other investment income. In most cases dividends and interest are reported to the taxpayer on a form T5. However, if no form T5 is provided the taxpayer must still report the income.

If you own a Canada Savings Bond with the special bonus interest, cash bonus coupons may be treated as either interest income or capital gains. If they are treated as income, they qualify for the interest and dividend deduction

discussed later; if they are treated as capital gains, only one-half the amount is taxable. The taxpayer may choose whichever method is more beneficial to him.

A taxpayer who is 65 or older can elect to treat the income portion of an ordinary annuity payment of payment as interest or pension income.

An interest, dividends and capital gains income deduction is allowed which permits the taxpayer to deduct from income the lesser of (i) $1,000 or (ii) the interest and dividend income received from Canadian corporations and taxable capital gains on disposition of Canadian securities net of interest on money borrowed to earn income from these sources. As we shall see later, this is a deduction in order to arrive at "taxable" income.

b) Rental Income (*Item D on tax return*).

A serpate schedule showing the revenue and expense earned from real estate rentals must be completed if you have this type of income. Completion of this schedule is very similar to the calculation of net professional income mentioned above. Unlike professional income, revenue can be reported on either the cash or accrual basis but, whichever method is adopted, it should be used consistently from year to year. Expenses allowed as a deduction are those incurred to earn the rental income.

One of the deductions allowed in arriving at net rental income is capital cost allowance. A provision in the Income Tax regulations limits the capital cost allowance claim to an amount equal to the net rental income from the building before claiming capital cost allowance. In other words, capital cost allowance cannot create a loss.

The rental loss restriction does not apply to multiple unit residential buildings on which construction was commenced after November 18, 1974 and before 1979 and which have been certified for special treatment by the Central Mortgage and Housing Corporation.

There are also limitations on capital cost allowance that can be claimed on "leased properties". In general, any leasing property which the taxpayer purchased after May 25, 1976 will be subject to similar restrictions as the restrictions on rental buildings discussed above.

c) Taxable Capital Gains (*Item E on tax return*)

Capital gains result if you have sold capital properties during the year, (e.g. stocks, bonds, real estate, etc.) and a schedule must be completed to support the amount to be taken into income.

The excess of taxable capital gains over allowable capital losses must be included in income. A taxable capital gain is defined as one-half of the gain from the disposition of a capital property while an allowable capital loss is one-half of the loss from such a disposition. If capital losses from the disposition of property, other than listed personal property (i.e., works of art, jewellery, rare books, stamps or coins) exceed capital gains, an individual may deduct up to $2,000 of the net allowable capital losses from income from other sources in the same year. There are provisions in the Income Tax Act to apply any additional excess capital losses to the previous year's income, by filing a prescribed form, or to any number of future years' incomes until they are absorbed.

Personal Residence

Ordinarily a person's residence is exempt from tax on any capital gain realized on disposition if the property was used as his principal residence for the entire period after 1971.

Where each spouse owns solely one of two residences ordinarily inhabited by each (for example a house and cottage), a principal residence exemption will probably be available on the disposition of each.

Where the two properties are owned jointly by the spouses, a principal residence exemption may be available on a portion of the gain from the disposition of each, provided reciprocal transfers of the joint interests are made prior to the disposition.

If for a period of time after 1971, both residences were owned solely by one spouse, the principal residence exemption will not be available in respect of both residences for that period. The years of ownership after 1971 and before the inter-spousal transfer will be "lost" in respect of one residence. In conclusion then, to maximize the principal residence exemption, the sooner one of the residences is transferred to the other spouse (or a joint tenancy arrangement is arranged for both residences) the better. Note that some provinces impose a gift tax on transactions of this nature.

Use of personal residence for business purposes

Where a dentist is using a portion of his or her personal residence for clinic and office purposes, special rules apply regarding capital gains and the deductibility of capital cost allowance from the income of the practice. Care has to be taken, especially where the dentist has only just begun using the residence as his clinic, in order to avoid a deemed capital gain. The Income Tax Act specifies that where a change in the use of capital property has occurred (for example, when the house, or a portion of it, has changed from being the residence of the taxpayer to being his place of business) a disposition of that property is deemed to have occurred and may be subject to capital gains tax. The disposition is deemed to have occurred at its fair market value at that time and to the extent that this value is greater than the cost of the property or its fair value at that time and to the extent that this value is greater than the cost of the property or its fair value on December 31, 1971 (assuming you owned the property on December 31, 1971), the capital gain is taxable. However, in Interpretation Bulletin IT-120R, dated December 6, 1976, Revenue Canada has outlined its policy in the case where only part of the residence is being used for business purposes. As long as the taxpayer does not claim capital cost allowance on any portion of the residence, "it is the Department's view that a change in use of the property has not occurred and that the entire residence maintains its nature as a principal residence, provided it so qualifies". It would appear that this policy does not affect the

deductibility of maintenance costs, etc. It should be noted that while the Interpretation Bulletin can in no way be taken as law, it does give a good indication of Revenue Canada's assessing practice.

In any event, a dentist using all or part of his residence for business purposes should check with his accountant to ensure that he is not incurring any additional tax liability.

3. Deductions from total income to arrive at net income

After arriving at total income certain deductions are allowable, some of which are discussed below.

a) Registered Retirement Savings Plans (*Item F on tax return*)

The amount that is deductible in respect of contributions to a registered retirement savings plan(s) (RRSP) is limited to:

i) In the case of an employee who is or may become entitled to benefits under a pension fund or plan (whether or not he contributes to the pension fund), the lesser of $3,500 and 20% of earned income minus, in each case, the amount, if any, he is allowed to deduct from income for his contribution to a registered pension fund or,

ii) In any other case, the lesser of $5,500 and 20% of earned income. "Earned income" usually consists of income received as salary (before any pension deductions) and income from carrying on a business or profession plus net rental income from real property. The amounts deductible are those paid in the 1977 calendar year and within 60 days thereafter.

In 1974, the rules relating to registered retirement savings plans were changed to allow one spouse to make a contribution to a plan for the benefit of the other with the deduction being allowed to the contributor and the income being taxable to the beneficiary-spouse when the funds were extracted. A large number of taxpayers apparently took advantage of this change and after contributing to a spousal RRSP collapsed the plan which effectively transferred the income to the spouse in a lower tax bracket. Proposed legislation is that withdrawals after March 31, 1977 will be taxed in the hands of the contributor, to the extent of contributions to the plan in the year of withdrawal and in the prior two years.

b) Registered Home Ownership Savings Plan (*Item G on tax return*)

A registered home ownership savings plan (RHOSP) may be established to help save money towards the purchase of a house. Contributions will be deductible to a maximum of $1,000 per year up to a lifetime maximum of $10,000. Deductions are allowed if made during the year or within 60 days after the year end. If during 1977 the taxpayer owned or jointly owned real property in Canada which was used as an individual dwelling place, or held an interest in a partnership which owned such real property in Canada, then he will not be entitled to the deduction. The withdrawals from a Plan must be for the purpose of providing an amount to be used for the purchase of an owner-occupied home, otherwise income tax will become payable on these withdrawals.

Both spouses, if eligible, may create their own plans. They may then use the funds in both plans to purchase their home jointly or one spouse may use the funds for the purchase of their first home while the funds in the other plan could be used to purchase a summer cottage. However, the consideration mentioned earlier with respect to capital gain on disposition of properties, should always be kept in mind.

Because the original rules relating to Registered Home Ownership Savings Plans were very loosely drawn they quickly became vehicles for popular tax avoidance. Proposed legislation will establish the following additional rules:

1. Transfer of Funds

Effective March 31, 1977, a tax-free rollover of funds from a RHOSP to a registered retirement savings plan is no longer permitted. In future, RHOSP funds not invested in a home will be eligible only for the purchase of an income averaging annuity contract or can simply be included in income.

2. Ownership by Spouse

A taxpayer whose spouse with whom he or she is living owns a home will no longer be able to acquire a RHOSP. A taxpayer who has already acquired a RHOSP under these circumstances will not be permitted further contributions, although past contributions can still be applied toward the purchase of a home. This change will be effective for the 1978 and subsequent taxation years.

3. Purchase of Furniture

Taxpayers will no longer be able to withdraw RHOSP funds tax-free in order to purchase furnishings. The change will be effective for 1978 and subsequent years and will apply to both existing and new RHOSP plans.

4. Limit on Term

A limit of 20 years will be placed on the time allowed for contributions to a RHOSP and the use of RHOSP funds for the purchase of a home. A taxpayer who contributes the maximum $1,000 each year will reach the cumulative contribution limit of $10,000 in 10 years and will have a further 10 years to purchase a home.

A number of other changes in RHOSP rules are also proposed. For the 1977 and subsequent taxation years, a taxpayer will be able to deduct contributions made to the plan in the year of purchase of his home. All amounts withdrawn and not properly expended within 60 days after the end of the year of withdrawal will still be fully included in income, but any amounts expended (to the extent of the previous withdrawal) in the following three years will be deductible to the extent they are invested in an owner-occupied home. Other changes will amend the legislation to establish that a contravention of rules after registration can lead to its revocation, and will disquality taxpayers who own residential property outside Canada from contributing to a RHOSP.

c) Tuition Fees (*Item H on tax return*)

Tuition fees are not deductible by anyone other than the student regardless of who paid the fees.

The other deductions permitted are relatively self-explanatory and will not be discussed here. We have now arrived

Calculation of Taxable Income

		$	c
Total Income (from line 24 on page 1)	24		
Canada or Quebec Pension Plan Contributions (Guide item 19)			
Contributions through employment from Box D on all T4 slips (maximum $151.20)	25		
Contribution payable on self-employed earnings (from page 3)	26		
Unemployment Insurance Premiums from Box E on all T4 slips (maximum $171.60; Guide item 20)	29		
Registered pension plan contributions (Guide item 21)	32		
Registered retirement savings plan premiums (Guide item 22; attach receipts)	33	F	
Registered home ownership savings plan contributions (Guide item 23; attach receipts)	34	G	
Annual union, professional or like dues (Guide item 24; attach receipts)	35		
Tuition fees—claimable by student only (Guide item 25; attach receipts)	36	H	
Child care expenses (complete and attach Schedule 5)	37		
Other deductions (Guide item 27; please specify)	31		
Add lines 25 to 38 inclusive	39		
Net Income (subtract line 39 from line 24)	40	I	

Basic Personal Exemption	**Claim**	$2,270	00
Age Exemption—If you were born in 1912 or earlier	Claim $1,420.00		
If claiming this exemption, did you receive the Old Age Security Pension in 1977?	Yes ☐ No ☐		
Married Exemption If applicable, please check ✓ box 1. or 2.			
Married on or before 31st December, 1977, and supported spouse in 1977			
1. whose net income in that year, while married, was not over $380.	1. ☐ Claim $1,990.00		
2. whose net income in that year, while married, was over $380. but not over $2,370.	2. ☐ 2,370 00		
Subtract: spouse's net income while married			
Claim			
If you became married in 1977, please give date of marriage			

Exemption for Wholly Dependent Children *See Guide item 33.*
Provide details below and claim according to child's age and net income. Do not claim here for a child you have claimed on Schedule 6. See Guide item 33 if child's net income exceeds limit.
Children under age 16 at end of 1977—Claim $430 for each child whose net income was not over $1,510.
Children age 16 or over at end of 1977—Claim $780 for each child whose net income was not over $1,590 and who, if over 21, was in full-time attendance at a school or university or was infirm.

Name of child (attach list if space insufficient)	*Relationship to you*	*Date of birth of child* Day	Month	Year	*If over 21 in 1977, state school attended or whether infirm*	*Net income in 1977 $*	*Claim*

Total claim for wholly dependent children	43		
Additional Personal Exemptions from Schedule 6 attached	44		
Total Personal Exemptions (add above items)	45		
Subtract line 45 from line 40	46		

Standard deduction—Claim $100 (no receipts required) **or** total at line 50 below, **but not both**	47	J	
Medical expenses—(attach receipts and completed Schedule 3)	40		
Subtract: 3% of 'Net Income' (line 40 above)			
Allowable portion of medical expenses			
Add: **Charitable donations** (attach receipts and completed Schedule 3)	49		
Total *(If this amount is greater than $100, enter on line 47 above)*	50		
Interest, dividends and capital gains deduction (Guide item 38 ; attach completed Schedule 4)	51	K	
Pension income deduction (Guide item 39)	52	L	
Deduction for persons totally blind at any time in the year, and persons confined throughout any 12 month period ending in the year for a substantial period each day to a bed or wheelchair (Guide item 40). Claim relates to: Self ☐ or dependant other than spouse (specify)	53		
Education deduction for eligible students and, within limitations, for persons supporting such eligible students (Guide item 41) Self ☐ or dependant other than spouse (specify)	54	M	
Eligible deductions transferred from spouse (Guide item 42; attach completed Schedule 9)	55	N	
Gifts to Canada or a province (Guide item 43; attach receipts)	56		
Non-capital losses of other years (Guide item 45)	57		
Capital losses of other years (1972 to 1976) (Guide item 46)	58		
Add lines 47, 51 to 58 inclusive	59		
Taxable Income (subtract line 59 from line 46—enter this amount on page 4)	60	O	

at net income for income tax purposes. (*Item I on tax return)*

4. Computation of taxable income

Once net income for income tax purposes has been determined, it is necessary to calculate taxable income which is the basis for the actual tax calculation (see page 2 of the tax return). In order to arrive at taxable income, certain other deductions must be made from net income. These include personal exemptions, deduction for medical expenses, charitable donations and certain other deductions, some of which are discussed below.

a) Medical expenses and charitable donations (*Item J on tax return*)

Medical expenses, except those expenses which were reimbursed by OHIP, are deductible to the extent they exceed 3% of net income for income tax purposes (as calculated earlier).

The amount of charitable donations which you may deduct is limited to the lesser of the actual expenditure (supported by receipts) and 20% of net income for income tax purposes. A donation must have been made to a registered Canadian charitable organization in order to qualify. Gifts to Her Majesty are not subject to limitation and may be deducted in full.

If the total of the deductible medical expenses and charitable donations is less than $100, the standard deduction of $100 should be taken.

b) Interest and dividend income deduction (*Item K on tax return*)

As mentioned previously, an interest, dividends and capital gains deduction is available. To be eligible for the deduction the interest dividends, and capital gains income must be received from Canadian sources. However, interest and dividends received from or capital gains on the sale of securities of a corporation 50% of which was owned by the taxpayer or his immediate family is not eligible, nor is interest income received from a related person.

The proposed amendment for the $1,000 interest and dividend income deduction is that only net interest or dividend income will be eligible. Specifically, to the extent that interest expense is incurred to earn interest or dividend income, the amount of the interest expense will be deducted from the income in calculating the net amount eligible for the interest and dividend income deduction.

Another change that could affect the interest and dividend income deduction is the proposal to give a taxpayer who is 65 or older the option to treat the income portion of an ordinary annuity payment either as interest or pension income. If such a taxpayer had more than $1,000 of other pension income but less than $1,000 of interest and dividend income, he would elect to treat the annuity income as interest, thus maximizing his benefit from this provision.

Similarly, if he had $1,000 or more of interest and dividend income but less than $1,000 of other pension income, he would elect to treat the annuity payment as pension income to take the maximum advantage of the pension income deduction. Annuities received under statutory deferred income plans or an income-averaging annuity contract do not qualify.

c) Pension income deduction (*Item L on tax return*)

For those taxpayers age 65 or over who are receiving pension income there is a deduction available (to a maximum of $1,000) in respect of this income, similar to that available for interest and dividend income. "Pension income" includes (1) a payment out of a superannuation or pension fund (2) an annuity under a registered retirement savings plan or deferred profit sharing plan, and (3) the income of any other annuity other than one being received under the Old Age Security Act or similar plan of any province, or under the Canada Pension Plan.

A taxpayer who is under the age of 65 is eligible for the deduction if he receives annuities from either (2) or (3) above and the annuity is received by the taxpayer as a consequence of the death of his or her spouse. A payment out of a superannuation or pension fund qualifies whether or not it is received by the taxpayer as a consequence of the death of his spouse.

d) Dependent university students (*Item M on tax return*)

Students in full time attendance at university may deduct from their income $50 for each month that they attended university during the year. A person supporting such a student may deduct from his income the amount the student did not have to claim in order to reduce taxable income to nil.

e) Eligible deductions transferred from spouse (*Item N on tax return*)

Where a taxpayer's spouse has income eligible for the interest and divident deduction and the pension deduction but does not have sufficient income after deducting his or her personal exemption fully to use the available income deduction, the unused portion of the deduction may be used by the taxpayer in addition to his or her income deduction.

An example follows for illustrative purposes, although a schedule is provided for the taxpayer with the tax return.

Spouse's income	
Eligible dividends and interest income (investment income)	$2,500
Eligible pension income	1,000
Other income	1,000
Total income	4,500
Other deductions	(400)
Personal exemption	(2,270)
Spouse's taxable income	1,830
Interest and dividend income deduction	(2,000)
Eligible deductions transferred	$ 170

Only the spouse earning the eligible income is eligible for the deductions discussed above. In order to obtain the maximum deductions, then, both spouses must earn investment and/or pension income.

If only one spouse is earning investment income, thought should be given to a bona fide loan from one to the other to enable both to generate investment income. The loan should be payable on demand with or without interest and should be documented by retaining signed promissory notes. The spouse should receive an actual cash fransfer which he or she can use to invest as he

or she chooses rather than receiving a transfer of securities already owned by the transferor. One spouse cannot give funds to the other spouse in order to purchase investments, as in this case, the income from the investment would be attributed back to the donor and no advantage would be obtained.

As noted earlier, to obtain the pension income deduction the taxpayer must earn "qualified pension income". For persons over age 65, one method of converting investment income to qualified pension income would be to sell some investments and purchase an annuity with the proceeds (the interest portion of the annuity being considered qualified pension income). Income splitting by way of bona fide loan can be effected here as well to double up the deduction.

The figure which results after the above deductions have been made from net income for tax purposes is taxable income which will be used as the basis for calculating tax. (*Item O on tax return*).

5. Calculation of Federal Tax

Taxpayers are entitled to reduce their federal taxes payable by 9 percent, subject to a minimum reduction of $200. Taxpayers are also allowed to deduct $50 for each dependent child resident in Canada who is under eighteen years of age and is claimed as a dependent. However, the total of these two deductions cannot exceed $500.

The tax reductions are incorporated in tax tables supplied to all taxpayers. If you meet certain conditions laid out in the tables, you can use the tables to arrive at your taxable income. If not, Schedule I must be used to calculate taxes payable.

6. Provincial taxes on individuals

Each of the 10 provinces imposes its own tax on the income earned by individuals resident in that province. With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax. The amount payable will be included with the federal payment and the method of calculation is indicated on the T1 tax return.

Certain provinces allow tax credits in respect of rent or property taxes paid in the year, old age credits, sales tax credits and contributions to provincial political parties.

A federal political contribution tax credit is allowed, subject to percentage limitations and a maximum limitation of $500. Only receipts issued by officially nominated candidates to parliament will quality for the credit.

7. Payment of tax

Individuals who derive more than 25 percent of their income from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during the year on March 31, June 30, September 30 and December 31. The required instalments are based on the lesser of the tax on the current year's estimated income or the tax paid in the previous year. No tax instalments are due where the total tax payable will be under $400. Form T7B for individuals is available for the calculation of estimated tax. One quarter of the calculated estimated tax plus Canada Pension Plan instalments are due on each of the above dates, the balance, if any, being payable by April 30th of the following year.

8 Dentist on salary

The Income Tax Act provides for the deduction of certain items from salary income. The allowable expenses include annual professional dues and an employment expense deduction equal to the lesser of $250 and 3% of the income from employment. In addition, if the dentist is employed under a contract which requires that, in the performance of the duties of the office, he must personally pay certain expenses such as office rent, salary to assistants or substitutes, for the purchase of his own supplies and travel costs, then these expenses are deductible. Canada Pension Plan and Unemployment Insurance contributions on behalf of assistants are also deductible. No convention expenses may be deducted from salary income.

9. Professional partnerships

Parnership income is taxed in the hands of the partners but there are certain features to be considered in determining income at the partnership level such as capital cost allowance provisions. Basically, the income from a partnership is first determined at the partnership level. The income so determined is then allocated to each partner who includes this allocation in his personal income. Special treatment is required for the reserve for 1971 accounts receivables discussed at the beginning of this article. Certain deductions for expenses incurred personally, such as interest paid on money borrowed to purchase a partnership interest, are allowed. The partnership arrangement should be supported by a legal partnership agreement the drafting of which normally requires professional advice. You may be best advised to obtain professional help in the preparation of your tax return where you are a member of a partnership because of the added complexities involved.

10. Books and records

The Income Tax Act requires that books and records be kept in order to support all income and deductions claimed. These records should be maintained in such a manner as to facilitate checking by income tax auditors or, indeed, your own accountants. Your records must be maintained until written permission to dispose of them is obtained from Revenue Canada Taxation.

11. Tax tips

We have in the course of this article touched on several of the more popular methods of sheltering income and deferring income tax. These were investing in multiple unit residential buildings, registered retirement savings plans, purchase of annuities to shelter certain types of income, prudent use of interest and dividend or pension income deduction. However, other methods do exist, some of which are:

a) Equipment — lease or buy?

When a dentist wishes to acquire additional equipment an analysis should be performed as to whether it would be better to lease or buy the equipment. Lease payments are deductible for tax purposes and in some cases the tax benefit of the lease deduction versus capital cost allowance may ex-

ATASOL®

Non-ASA Analgesic/Antipyretic
With or Without Codeine

Acetaminophen

INDICATIONS
For the relief of mild to moderate pain of various causes as in: headache, migraine, dental pain, dysmenorrhea, myalgias and neuralgias. Also useful as an antipyretic when fever accompanies painful conditions.

CONTRAINDICATIONS
Repeated administration to patients with anemia or with cardiac, pulmonary, renal or hepatic disease is contraindicated.

PRECAUTIONS
It has been reported that acetaminophen potentiates the action of warfarin-type anticoagulants if administered several times daily over a two-week period. This should be borne in mind if the two drugs are administered concurrently. Renal damage has not been reported following the use of acetaminophen in therapeutic doses, but the chemical relationship of this drug to phenacetin cautions against its use in large amounts over protracted periods of time.
Although tolerance and addiction to codeine are rare, ✪ Atasol-15 and ✪ Atasol-30 should be prescribed cautiously to addiction-prone individuals. The drug should be administered with caution since the depressant effects of codeine may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS
These are usually mild and rare. G.I. upset, usually rarer than after salicylate administration, and skin reactions are known, and anemia has been reported after chronic ingestion. Usually after larger doses, codeine may cause g.i. symptoms of nausea, vomiting and constipation.

DOSAGE AND ADMINISTRATION

ATASOL TABLETS
325 mg acetaminophen
Adults: 1-3 tablets daily
Children: 10-14 years, one-half tablet, 3 times daily

ATASOL FORTE TABLETS
500 mg acetaminophen
Adults: 1-2 tablets as directed by a physician, up to a maximum of 5 tablets daily

ATASOL LIQUID
108 mg acetaminophen/5 ml
Children: 5-9 years, usual dose, 1 teaspoon 3 times daily or as directed by a physician to a maximum of 2 teaspoonsful 4 times daily
2-4 years, usual dose, one-half teaspoon 3 times daily or as directed by a physician up to a maximum of 1 teaspoon 4 times daily

ATASOL DROPS
54 mg acetaminophen/0.6 ml
Children: 2-4 years, usual dose 0.6 ml 3 times daily or as directed by a physician up to a maximum of 1.2 ml 4 times daily
1-2 years, as directed by a physician up to a maximum of 0.6 ml 4 times daily
under 1 year, as directed by a physician up to a maximum of 0.3 ml 4 times daily

✪ ATASOL-8
325 mg acetaminophen
8 mg codeine phosphate
30 mg caffeine citrate
Adults: usual dose, 1 tablet 3 times daily or as directed by a physician up to a maximum of 2 tablets 4 times daily
Children: 10-14 years, usual dose, one-half tablet 3 times daily or as directed by a physician up to a maximum of 1 tablet 4 times daily

✪ ATASOL-15
325 mg acetaminophen
15 mg codeine phosphate
30 mg caffeine citrate
Adults: 2 to 4 tablets daily or as directed by a physician

✪ ATASOL-30
325 mg acetaminophen
30 mg codeine phosphate
30 mg caffeine citrate
Adults: 2 to 4 tablets daily or as directed by a physician

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ceed the additional apparent cost of leasing.

b) Management companies

Management service corporations enable the dentist to streamline his practice. By assuming the non-professional aspects of his practice, the dentist is able to devote more time to his profession. Thus management service corporations fullfil a valid business function in providing a host of administrative services as well as providing potential personal tax savings.

For example, the dentist's spouse can own a corporation which owns the equipment used by the dentist, hires the dentists, receptionist, etc. The corporation charges the cost of the items used by the dentist plus a management fee. The total amount paid by the dentist is deductible from his income and the net result is that the amount charged as the management fee stays within the family unit but is taxed at a lower rate.

The same principle can be applied to the situation where a group of dentists incorporate a company that owns their building. The corporation charges the individual dentists rent, which the dentists deduct from their income. The rental income will be taxed within the corporation and distributed to the dentists when their income and tax rates are lower.

The variations are virtually endless but each case is unique and everything must be tailored to the case in question. In all cases you may be best advised to obtain professional help where you are considering one of the above.

LETTERS TO THE EDITOR

Impacted third molar

Contrary to Dr. Keen's belief that the impacted third molar is a contentious subject (*Letter, JCDA, November, 1977, page 516*), I would like to state that a consensus of opinion among those dental surgeons who deal with the orthodontic, periodontal and surgical problems associated with the impacted tooth would certainly agree that early removal is usually indicated, unless, of course, a threat to life or the risk of greater than acceptable levels of morbidity exist.

Twenty-eight years in general dentistry may not expose one to the impaction problems found in one year of a busy oral surgery practice. Future problems can be readily predicted radiographically. Who will predict that the dental patient will return for follow-up examinations every 3 or 4 years, (certainly enough time to allow for *asymptomatic* but definite pathology to occur)?

Present day knowledge of pharmacology, surgical armamentarium and good technique render it utterly ridiculous to equate elective impaction surgery with appendectomy or mastectomy. (The appendix is routinely removed when the abdomen is opened for any type of abdominal surgery.)

Dr. Keen's "fairly successful approach" in removing the second molars is certainly inadequate, unless its removal is indicated because of breakdown or anticipated surgical damage to the second molar.

Does Dr. Keen also believe that intraoral nevi not be removed until the odd one transforms to a malignant melanoma; that slow-growing benign tumors be observed until they encroach on vital structures; until the difficulties stated by Dr. Raley et al become a reality? When Dr. Keen's patients finally do present with symptoms, and radiographs reveal fusion to the second molar, ankylosis, hypercementosis, and/or envelopment of the inferior alveolar nerve by the fully developed root of the impaction, and, oh yes!, the month previously the patient suffered a myocardial infarction, does Dr. Keen treat the patient himself, or refer him to an oral surgeon?

If Dr. Keen persists in his beliefs, he should be certain to inform his patients of all possible consequences of his action, or lack of it.

Gary L. Freedman, DDS, MSD, FRCD(C),
Diplomate, American Board of Oral Surgery, Montreal, Quebec

Instructions to Contributors

The Journal of the Canadian Dental Association is currently soliciting research and clinical articles for publication. Interested contributors are asked to use the following outline of requirements when preparing manuscripts.

Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies — original and a carbon — typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, 8½ × 11 inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

Article Titles Make article titles descriptive but as concise as possible. Long titles discourage reading, present typographical and layout problems and create difficulties in library indexing.

References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. J Canad Dent Ass 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

Illustrations: Line and halftone illustrations should be of high quality for satisfactory reproduction.

Photographs — Handle photographs carefully. Do not bend, fold or use paper-clips. Photographs should be unmounted, untrimmed, good, sharp, black and white glossy prints, preferably not larger than 10 × 8 inches. Color work can only be published at the author's expense. Magnification of photomicrographs must always be given. Photographs must not be written on or typed on. On the back of each photograph, very lightly and in pencil, write the author's name, the figure number and indicate the top edge. If a figure contains two or more photographs, do not mount the parts; on the back of each photograph write very lightly in pencil the figure number and part letter (Figure 1a, etc.) and indicate the top edge. Patients must not be recognizable unless the written consent of the subject to publication has been obtained.

Drawings — Figures, graphs, charts and diagrams should be drawn and lettered in india ink. Lettering must be large enough to be read after the drawings are reduced to column width (small, simple drawings) or page width (larger, more complex drawings).

Legends — Figure legends should be typed as a group on a separate sheet. They should be separate from the text of the article and from the illustrations.

Tables: Each table should be typed on a separate sheet. Tables should be numbered consecutively and tailored to fit within column width or page width. Table title and table footnotes should be on the same page with the table. Do not show vertical rules in tables.

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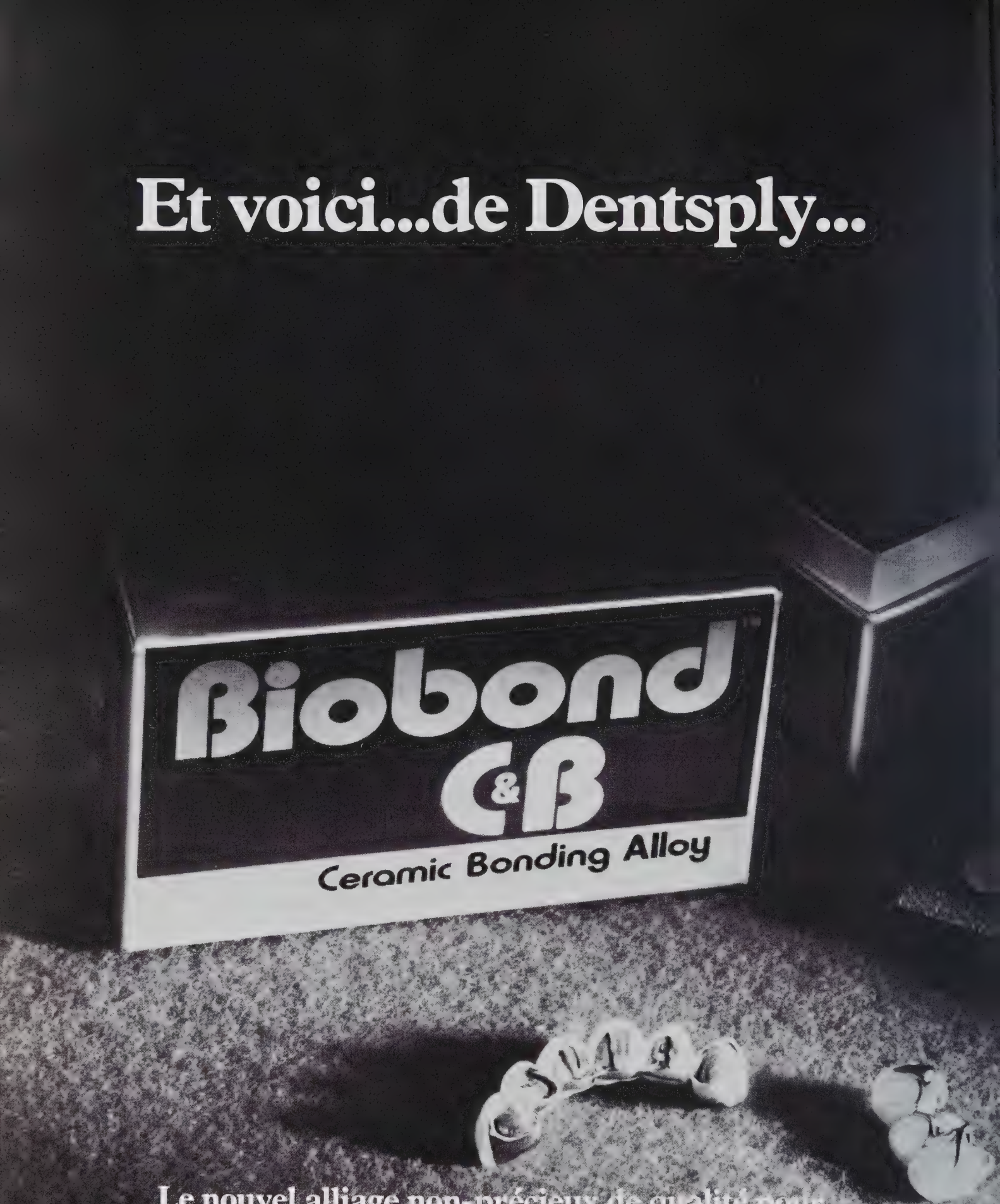

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CORRÉLATIONS ENTRE LES SIGNES CLINIQUES, CYTOLOGIQUES ET HISTOLOGIQUES DES PULPITES CHEZ L'HOMME

Christiane Mascrès[1], DDS, PhD.
Mark Bonner[2], DMD.
Montreal

Un échantillon de 104 dents vivantes a été utilisé pour établir une corrélation entre les signes cliniques, cytologiques et histologiques des pulpites.

Nous avons conclu que:

1. *le diagnostic clinique concorde avec le diagnostic histologique dans 75% des cas environ.*
2. *le frottis cytologique améliore le diagnostic clinique de 10% environ.*
3. *La variété histologique des pulpites chroniques nous a entraîné à établir une classification originale allant du grade 1 à 5.*
4. *Le concept de la douleur a été précisé.*
   - **La multiplication des stimuli au cours de l'observation clinique permet de préciser le diagnostic clinique.*
   - **Un pulpite chronique avec abcès (pulpite ''avancée'') s'accompagne de douleur au froid dans 75% des cas.*
   - **Il existe une corrélation entre la réponse aux stimuli et la gravité du stade histologique.*
   - **L'hyperémie cliniquement difficile à mettre en évidence peut s'accompagner de crises douloureuses ou être asymptomatique.*

A la lumière des observations histologiques, le terme de ''pulpite réversible'' pourrait être remplacé par ''pulpite guérissable''.

A sample of 104 vital teeth has been used in order to establish a correlation between clinical, cytological and histologic findings in pulpits.

The conclusions are:

1. *clinical diagnosis and histologic diagnosis show a concordance in almost 75% of the cases.*
2. *With the help of cytologic smear, the clinical diagnosis becomes right in 10% cases more.*
3. *For the convenience of our analysis, we set an original classification of chronic pulpitis from grade 1 to grade 5.*
4. *The value of pain symptom is detailed as follows:*
   - **The multiplication of stimuli during clinical observation helps for a better diagnosis.*
   - **A chronic pulpitis with abcess (or the so-called ''advanced pulpitis'') goes together with pain to cold in 75% of all cases.*
   - **We find a correlation between positive response to stimuli and histologic stage of pulpitis.*
   - **The hyperemia so difficult being identified clinically can either be associated with pain crisis or be asymptomatic.*

With the help of histologic observations, the denomination or ''reversible pulpitis'' could be changed into ''healable pulpitis''.

Le diagnostic clinique des pulpites est souvent sujet à erreur. En effet, le praticien est essentiellement guidé, dans son choix thérapeutique, par le symptôme subjectif qu'est la douleur décrite par le patient: les différentes classifications histo-pathologiques des pulpites sont ainsi souvent bien éloignées de la réalité clinique où l'intuition et l'empirisme se substituent à la rigueur scientifique. Le diagnostic clinique ne peut véritablement être confirmé que par l'analyse de la coupe histologique. Ceci implique le sacrifice de l'organe, ce dont on essaie de se dispenser.

Certains endodontistes, conscients de la difficulté d'évaluer une lésion pulpaire au moyen d'une investigation clinique seule, ont préconisé l'emploi de tests plus scientifiques. Ainsi Prader a été le premier à utiliser l'hémopulpogramme pour fin de diagnostic après en avoir mis au point la technique.[1] Sur frottis d'une goutte de sang pulpaire observée au microscope après coloration, il effectue le comptage des cellules de la lignée blanche. Il peut ainsi arriver à des déductions qui aident au diagnostic et orientent la thérapeutique. Il conclut que la présence de lymphocytes et de monocytes est le signe d'une pulpite toxique; celle de leucocytes polymorphonucléaires neutrophiles, d'une pulpite irréversible. Présents en très grand nombre, les neutrophiles signalent un abcès pulpaire.

Cette technique de l'hémopulpogramme est désormais

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classique puisqu'elle est décrite dans les livres de référence modernes[2-3]. Si certains auteurs tels Marmasse[2] ou Tommasi[4] la relèguent au rang de technique de laboratoire, d'autres, comme Silbert[5] lui trouvent une valeur incontestable comme aide-diagnostic au moment de la trépanation pulpaire. Selon Tommasi[4], en effet, l'hémopulpogramme permet dans 88,8% des cas, le choix d'une thérapeutique adaptée alors que les méthodes habituelles de diagnostic conduisent au succès dans seulement 50% des cas. Seul, par contre, l'examen histologique permet de diagnostiquer le type de pulpite avec précision.

A notre connaissance, il n'existe pas dans la littérature de travaux comparables. Aussi avons-nous voulu établir une corrélation entre les données relevées en clinique, celles découlant de l'examen cytologique, et les conclusions apportées par l'histopathologie.

Matériel et méthodes

Notre étude porte sur des patients sélectionnés à la clinique de chirurgie de la Faculté de Médecine Dentaire (Université de Montréal) et au service de chirurgie buccale de l'hôpital Notre Dame de Montréal (Service du Dr A. Raymond).

1 — *Type de patients*

Notre échantillon consiste en 104 patients choisis au hasard parmi des candidats à l'avulsion dentaire. Ils sont répartis en 61 sujets de sexe masculin et 43 de sexe féminin. Ce sont essentiellement des adolescents ou des adultes jeunes dont la plupart ont entre 12 et 24 ans (fig. 1). Cinq patients dont l'âge varie entre 28 et 54 ans ne figurent pas sur ce graphique.

La plupart d'entre eux ne signalent aucune maladie systémique. Trois présentent certains dysfonctionnements tels troubles digestifs, allergie ou croissance lente (cas 71). Un patient est atteint d'amélogénèse imparfaite (type hypoplasie).

2 — *Type de dents*

Les dents atteintes de nécrose, de gangrène pulpaire, celles atteintes de périodontopathies ont été éliminées. Ont été retenues les dents à pulpe vivante, cariées avec ou sans obturation, avec ou sans crise douloureuse signalant classiquement une pulpite. Parmi les dents utilisées figurent essentiellement des 1ère et 2ème molaires. Entre 10 et 14 ans, quatre fois plus de 1ères molaires que de 2èmes molaires ont été extraites. Entre 15 et 20 ans, la répartition entre 1ère et 2ème molaires extraites est équivalente. Enfin, 46 spécimens sont des dents permanentes supérieures, 53 des dents permanentes inférieures, cinq des dents primaires chez de jeunes enfants.

3 — *Protocole clinique*

L'expérience a été conduite suivant un schéma toujours identique comprenant en premier lieu l'interrogatoire avec relevé des signes cliniques et des données systémiques.

Le protocole clinique comporte:

a) la fiche d'identité et de santé du patient avec précision des troubles systémiques éventuels (nom, âge, sexe, profession, maladie systémique, formule dentaire);
b) une fiche d'observation de la dent intéressée (identification de la dent, forme clinique de la carie et nombre de surfaces dentaires impliquées; présence ou non d'une obturation et sa nature; état de la gencive péridentaire; signes de mobilité; contage de la douleur spontanée ou provoquée et sa qualité (initiation, fréquence, durée); résultats des tests de percussion, des tests de vitalité, vitalométriques ou exécutés au moyen de chlorure d'éthyle ou de gutta-percha chaude. Un diagnostic clinique est ensuite avancé, et énoncé suivant la classification des pulpites préconisée par Marmasse,[2] ou limité à la qualification "réversible ou irréversible" dans les cas complexes et trop litigieux.

4 — *Protocole cytologique*

Le prélèvement pour hémopulpogramme est exécuté suivant la technique classique décrite par Prader.[1] Après anesthésie locale ou loco-régionale, un avant-trou est préparé à la turbine refroidie par jet d'eau, dans le cas de dents obturées. Ou bien, si la dent est cariée, la dentine ramollie est enlevée à la curette. L'épaisseur de dentine supra-camérale est, si nécessaire, abaissée en direction d'une corne pulpaire en conservant une mince paroi protectrice. L'isolement de la dent au moyen d'un aspirateur et de compresses périphériques est vérifié. Après parage et assèchement de la cavité à l'air tiède, la pellicule de dentine résiduelle est trépanée au moyen d'un explorateur manié avec une pression mesurée en direction pulpaire. Un micropipette à prélèvement sanguin d'une capacité de 25μ1 est introduite dans la cavité et la première goutte de sang pulpaire y faisant saillie est récoltée par capillarité. La goutte est étalée sur une lame histologique et colorée suivant la méthode de Wright.[6]

L'évaluation numérique des différentes cellules de la lignée blanche se fait au microscope photonique à transmission par lecture à l'objectif 100. Les comptages sont exécutés pour 300 cellules et ramenés en pourcentage.

5 — *Protocole histologique*

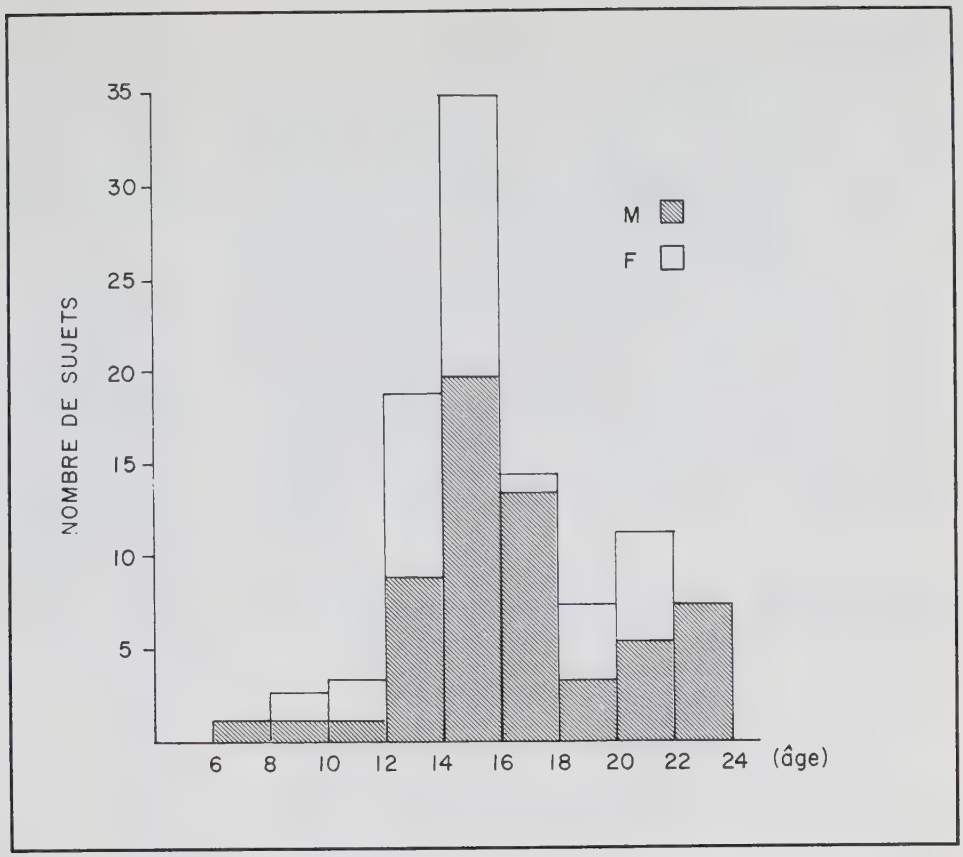
Après extraction, la dent est immédiatement placée pour fixation dans une solution de formol-calcium à 10% tamponné à pH 7 pour une période d'un mois. Elle est décalcifiée pour décalcification ionique dans une solution d'acide nitrique et de formaline à 10%. Apès lavage et déshydratation, les dents sont orientées longitudinalement, enrobées en paraffine et coupées à 7 μ. La région contenant la pulpe est montée en série et, après coloration avec hématoxyline - phloxine - safran, étudiée au microscope.

Le bilan histologique comporte des observations de deux natures:

a) *observations quantitatives.*

L'exsudat cellulaire intrapulpaire est évalué par comptage différentiel. Le décompte cellulaire est exécuté à l'objectif

Fig. 1 Répartition de l'échantillon en fonction du sexe et de l'âge



25 à l'aide d'un oculaire gradué. Les différentes catégories de cellules sont comptées pour trois champs adjacents, puis le compte est déduit pour une surface pulpaire de 1 mm2.

b) *observations qualitatives.*

La description de la lésion permet de situer celle-ci dans la classification histologique classique.[2-3] Afin de mieux définir certains aspects de l'atteinte pulpaire nous avons établi une classification originale des pulpites chroniques, allant du grade 1 à 5 et répartie comme suit:

Grade 1: pulpite chronique avec un foyer discret de cellules inflammatoires.

Grade 2: pulpite chronique avec un foyer très dense.

Grade 3: pulpite chronique avec plusieurs foyers denses.

Grade 4: pulpite chronique diffuse coronaire.

Grade 5: pulpite chronique diffuse totale.

Le diagnostic final donné par l'histologie est ensuite comparé avec l'évaluation pathologique établie d'après les données cytologiques et avec l'estimation clinique.

Résultats

1 — *Résultats cliniques*

Quatre-vingt-cinq patients présentent une carie intéressant plusieurs faces de la dent; dix-neuf, une carie d'une seule surface. Parmi les 104 spécimens étudiés, 11 cas seulement portent des obturations qui sont toutes des amalgames.

A l'examen, 49 cas présentent une hyperémie de la gencive marginale associée ou non à un oedème. Cette congestion tissulaire s'accompagne dans 25 cas de tartre sub ou sous gingival.

Dix dents, enfin, démontrent une certaine mobilité. Il s'agit dans deux de ces cas d'incisives centrales supérieures. Dans les autres cas, il s'agit de molaires dont deux cas sont diagnostiqués cliniquement comme pulpite aiguë irréversible, un cas comme pulpite chronique avec réveil aigu et cinq cas comme pulpite chronique.

L'étude symptomatologique nous permet de distinguer entre la douleur aux stimuli, la douleur provoquée par la percussion et les crises douloureuses spontanées.

a) *La douleur aux stimuli:*

Quatre stimuli ont été pris comme références pour définir les conditions de l'initiation douloureuse. Ce sont les stimuli par le sucre, les forces de mastication et les variations thermiques (froid et chaud).

Sur les 104 cas examinés, 73 présentent soit une histoire de douleur, soit une douleur existant au moment de l'examen. Parmi ceux-ci, 33 sujets signalent une douleur au sucre, 41 à la mastication, 21 au chaud et 54 au froid.

Une douleur à un seul stimulus (tel le froid ou la mastication) est signalée par 28% de ces patients. Un seul cas présente une douleur seulement à la chaleur, accompagnée d'une douleur irradiée, ressentie encore quelques heures avant l'extraction.

D'autres cas présentent des douleurs à 2 ou 3 stimuli différents dans toutes les combinaisons possibles. Cependant, on retrouve en plus grand nombre des dents avec

uniquement une sensibilité au froid ainsi qu'un sensibilité à la fois au froid, au sucre et à la mastication.

En plus de ces douleurs décrites comme courtes et passagères, 30 sujets sur 73 présentent des douleurs prolongées pouvant durer quelques heures ou quelques jours, intermittentes et installées depuis des semaines ou des mois.

De plus, la quantité de signes douloureux de courte durée semble fortement reliée à l'intensité ou au nombre des crises douloureuses. Plus le sujet est sensible à un nombre important de stimuli, plus souvent il pourra signaler des crises douloureuses prolongées, quelque soit le stimulus responsable. La figure 2 illustre la corrélation entre le nombre de stimuli efficaces et celui des crises douloureuses. On note alors une aggravation clinique possible allant des premiers signes discrets de la pulpite jusqu'à la pulpite à douleur ''exquise''.

Soixante-treize pour cent des dents de notre échantillon répondent par une douleur à au moins un stimulus. La réponse est indépendante du nombre de surfaces cariées.

b) *La douleur à la percussion.*

Douze sujets ne signalent pas de douleur à la percussion. Par contre, sur les 92 sujets qui réagissent, cinq ressentent une douleur à la percussion horizontale, 12 à la percussion verticale et 35 une douleur à la percussion horizontale et verticale.

Tout comme pour le cas précédemment décrit de la crise douloureuse, on peut établir une certaine relation entre la réponse à la percussion et la douleur aux stimuli. En effet, plus la dent répond à de nombreux stimuli, plus elle se trouve sensible à la douleur provoquée par la percussion.

D'après le critère basé sur la douleur, les 104 patients sont classifiables en trois groupes. Le groupe un ne présente ni douleur aux stimuli ni crise douloureuse; par contre, un léger pourcentage se révèle sensible à la percussion. Le deuxième groupe réagit douloureusement aux stimuli, sans accuser encore de crises douloureuses. Parmi ce groupe, un pourcentage plus important signale une douleur à la percussion. Enfin, un troisième groupe souffre de crises douloureuses et fréquentes, réagit à tous les stimuli et dans 50% des cas à la percussion (fig. 3).

c) *Le diagnostic clinique.*

Au cours de l'étude clinique, nous avons diagnostiqué sept cas d'hyperémie, 67 cas de pulpite chronique et 30 cas de pulpite aiguë.

Les hyperémies réagissent à une moyenne de 0,3 stimulus parmi les 4 stimuli que nous avons pris en référence. De plus, ces dents qui sont atteintes de caries superficielles n'accusent ni douleur à la percussion ni douleur prolongée.

Par contre, les pulpes classifiées comme atteintes de pulpite chronique présentent une réaction douloureuse à 1.15 stimuli en moyenne.

Ving-sept pour cent de ces pulpes sont douloureuses à la percussion, et 4% d'entre elles présentent une douleur depuis au moins quelques semaines.

Enfin, les pulpes atteintes de pulpites diagnostiquées comme aiguës réagissent à 2.2 stimuli en moyenne. Dans 66% des cas, les patients accusent des douleurs à la percussion. Dans 66% des cas aussi, le sujet rapporte des épisodes de crises douloureuses variant de quelques heures à quelques jours et se répétant parfois au cours de plusieurs mois, ainsi que des crises au décubitus.

2 — Résultats cytologiques et comparaison avec l'étude clinique

Les moyennes des résultats cytologiques sont présentées au tableau 1 d'après le type d'inflammation diagnostiquée cliniquement. On peut constater que l'association classiquement admise: lymphocytes - pulpite chronique et leucocytes polymorphonucléaires neutrophiles (ou LPN) - pulpite aiguë semble ici aussi le plus souvent vérifiée. Cependant, en disséquant plus systématiquement leur répartition, on observe dans les cas cliniquement chroniques un excès de lymphocytes par rapport aux LPN dans 52% des cas, une valeur identique dans 3% et une valeur moindre dans 44% des cas.

De même, dans les cas cliniques identifiés comme pulpite aiguë, l'augmentation des LPN par rapport aux lymphocytes est réelle dans 55% des cas, dans 10% des cas la valeur des deux types de cellules est identique, et dans 34% des cas, elle est moindre. Enfin, dans les cas diagnostiqués cliniquement comme hyperémie, on retrouve autant de cas avec prédominance de lymphocytes qu'avec prédominance de leucocytes polymorphonucléaires neutrophiles.

Quelques sujets présentent des valeurs très particulières avec des pourcentages élevés soit de LPN, soit de lymphocytes. Parmi dix cas où l'on compte plus de 80% de lymphocytes, on retrouve 6 pulpites diagnostiquées cliniquement comme chroniques et 4 pulpites diagnostiquées comme aiguës. D'une manière comparable, parmi sept cas présentant plus de 80% de LPN, cinq sont diagnostiqués cliniquement comme pulpites aiguës et deux comme chroniques. Si l'on reprend les données symptomatiques, ces cas présentent peu de particularité par rapport à l'ensemble de leur catégorie. Ces ''pulpites chroniques'' s'accompagnent toutefois de crises douloureuses dans 30% des cas environ, par rapport aux pulpites chroniques en général où ces crises ne sont signalées que dans 4,5% des cas.

Les autres cellules: monocytes, basophiles et éosinophiles présentent un rapport inconstant et indépendant. Un sujet — apparemment sans anomalie remarquable à l'examen clinique — compte 24% de monocytes au niveau de son frottis pulpaire. On en recense 10% chez un sujet avec polype pulpaire.

On note aussi une éosinophilie de 16% chez un sujet à croissance retardée (cas 71) et atteint de pulpite chronique.

3 — *Evaluation histologique.*

Les signes histologiques les plus habituellement rencontrés ont été relevés pour chaque cas. Ils sont présentés avec leur répartition, tableau II. Les résultats de l'atteinte pulpaire sont bien distincts dans les cas de pulpite aiguë ou chronique. Les signes de vieillissement tels fibrose et

Fig. 2 Corrélation entre réponse aux stimuli et crises douloureuses

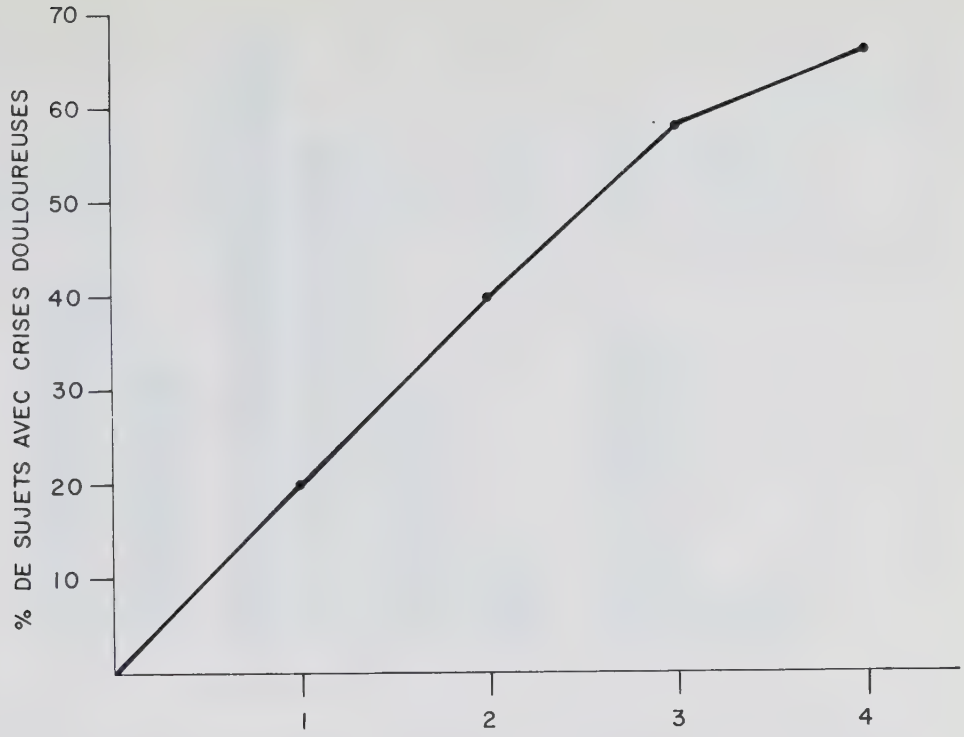
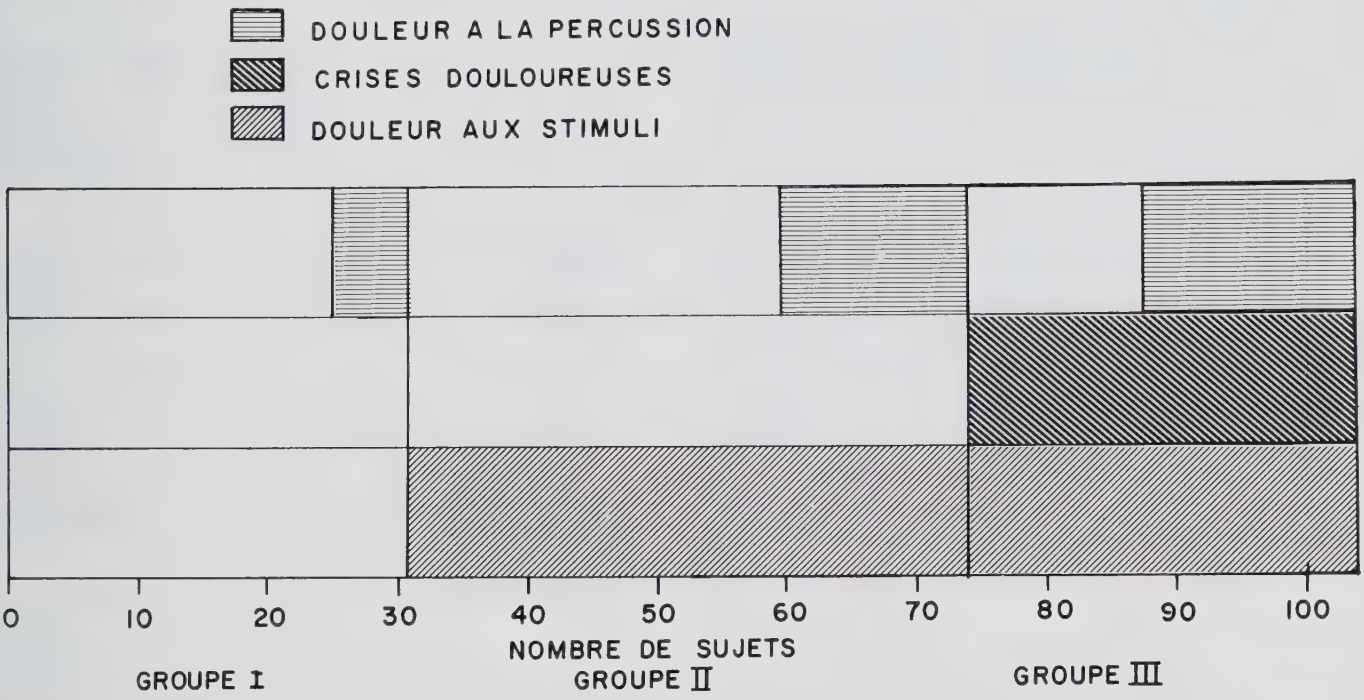


Fig. 3 Bilan clinique de la douleur.



calcification dystrophique, trouvés en cas de pulpite chronique ne se rencontrent pas dans les cas de pulpite aiguë que nous avons relevés.

Par contre, ils peuvent accompagner les cas d'hyperémie et être interprétés comme la cicatrice d'une souffrance pulpaire antérieure.

Le diagnostic histologique, basé tant sur l'analyse qualitative que quantitative permet la répartition des pulpites observées de la manière suivante: hyperémie: 4 cas; pulpite aiguë: 11 cas; pulpite chronique: 72 cas répartis comme suit, grade 1: 33 cas, grade 2: 13 cas, grade 3: 8 cas, grade 4: 6 cas, grade 5: 8 cas, ''pulpose'' ou fibrose pulpaire: 4 cas non classifiables d'après la quantité de l'infiltration cellulaire presqu'absente; enfin, pulpite chronique avec abcès: 17 cas. On constate ainsi une diminution du nombre réel des pulpites aiguës qui passent de 30 cas diagnostiqués cliniquement à 11 cas histologiquement confirmés.

L'évaluation histologique des cellules inflammatoires confirme que pulpites aiguës et pulpites chroniques avec abcès abritent respectivement une moyenne de 518 et 460 LPN par mm2. Par contre, dans l'un ou l'autre cas, les macrophages sont absents. Les plasmocytes, nombreux en cas de pulpite chronique avec abcès, sont quatre fois moins nombreux en cas de pulpite aiguë. En cas d'hyperémie pul-

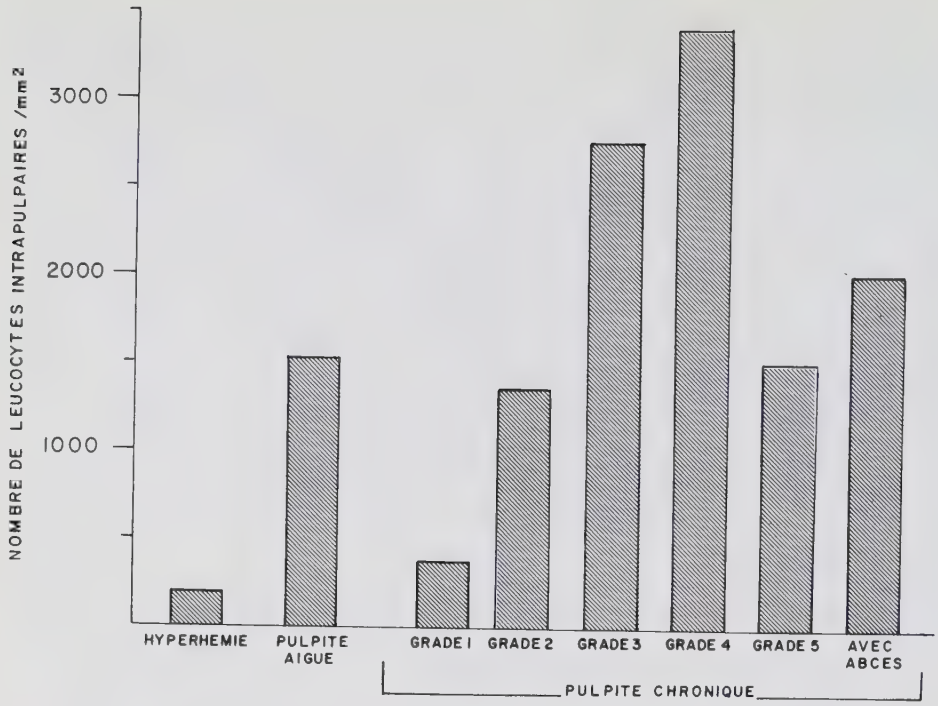


Fig. 4 Répartition des leucocytes selon le type de pulpite.

paire, le lymphocyte prédomine, avec une moyenne de 155 lymphocytes pour 8 plasmocytes et 4 LPN. Enfin, la répartition des cellules leucocytaires s'ajuste bien à la classification originale des pulpites chroniques employée (fig. 4). La plus grande concentration cellulaire correspond à la pulpite chronique grade 4 (ou diffuse limitée à la couronne), les signes histologiques de l'inflammation radiculaire étant souvent, par contre, très discrets.

L'analyse histologique périme la classification des pulpites que nous avions adoptée au cours de l'étude clinique. Ainsi, il nous faut modifier la répartition entre les différents types de pulpites, des données concernant les réponses aux stimuli. Les hyperémies pulpaires réagissent en moyenne à 1,5 stimuli (et non pas à 0,3 comme on concluait au cours de l'étude clinique). Les pulpes atteintes chroniquement réagissent à une moyenne de 1,2 stimuli (au lieu de 1,15) et, respectivement, pour les pulpites chroniques grade 1 à 1,2 stimuli; grade 2: 1,3 et grade 3: 1,6. En accord avec cette tendance, les crises douloureuses accompagnant les cas chroniques grade 1, 2 et 3 s'observent respectivement dans 9%, 23% et 30% des cas.

De plus, la pulpite chronique avec abcès répond à une moyenne de 2,3 stimuli et s'accompagne dans 75% des cas de douleurs provoquées par le froid. Enfin, la pulpite aigüe qui se signalait par une réponse positive à une moyenne de 2,2 stimuli, répond, après correction des diagnostics par les données histologiques, à 1,8 stimuli (les réponses cliniques aux stimuli d'après la classification histologique des pulpites sont détaillées (tableau 3).

Le tableau 4, enfin, résume la validité du diagnostic clinique comparé aux résultats histologiques. Pour les cas chroniques et aigus, le diagnostic est correct dans 75% des cas environ. Par contre, aucun cas d'hyperémie n'a pu être diagnostiqué cliniquement avec succès. En effet, la moitié des cas d'hyperémie était absolument asymptomatique alors que certains cas présentaient des crises douloureuses ainsi que des douleurs à la percussion.

Evaluation cytologique (moyenne de pourcentages) d'après le diagnostic clinique. Tableau 1

	Hyperémie	Pulpite aiguë	Pulpite chronique
Lymphocytes	43.8	44.3	50.8
Leucocytes polymorphonucléaires neutrophiles	49.0	52.4	44.2
L.P. basophiles	0.33	0.13	0.28
L.P. éosinophiles	3.5	1.4	1.8
Monocytes	3.1	1.8	2.6

Signes histologiques des pulpites Tableau 2

	Hyperémie	Pulpite aiguë	Pulpite chronique	Pulpite chronique avec abcès
Dilatation des vaisseaux	100%	9%	39%	8%
Hémorragie	—	—	9%	—
Vacuoles	—	—	24%	—
Denticles	25%	—	66%	23%
Calcification dystrophique	50%	18%	54%	15%
Fibrose	25%	—	48%	8%
Autres dégénérescences	25%	—	6%	—

Corrélation entre réponse aux stimuli cliniques et classification histologique des pulpites. Tableau 3

Clinique		Hyperémie	Pulpite aiguë	Pulpite chronique grade 1	Chronique grade 2	Chronique grade 3	Chronique grade 4	Chronique grade 5	Chronique moyenne	Chronique avec abcès
% de dents présentant une douleur provoquée par:	sucre	25	45	34	23	30	33	0	24	58
	masti-cation	25	54	25	38	40	50	14	33.4	58
	chaud	50	27	12	15	30	16	14	17.4	41
	froid	50	54	44	53	60	66	28	50.2	75
Réponse positive aux 4 symptomes (moyenne)		1.5	1.8	1.2	1.3	1.6	1.6	0.5	1.2	2.3
Percussion horizontale (% de dents)		25	18	25	30	10	33	28	25.2	33
Percussion verticale (% de dents)		25	36	25	38	20	50	28	32.2	33
Crises douloureuses (% de dents)		50	64	9	23	30	0	28	18	25

Validité du diagnostic clinique après étude histologique. Tableau 4

1 — Hyperémie diagnostiquée	— correctement:	0/4	0%
	— comme chronique:	2/4	50%
	— comme aiguë:	2/4	50%
2 — Pulpite aiguë diagnostiquée	— correctement:	8/11	73%
	— comme chronique:	3/11	27%
	— comme hyperémie:	0/11	0%
3 — Pulpite chronique diagnostiquée	— correctement:	57/76	75%
	— comme aiguë:	13/76	17%
	— comme hyperémie:	6/76	8%

Discussion

La classification histologique des pulpites est plus complète et plus complexe que la classification clinique des pulpites. Grâce au diagnostic final très précis, on peut ainsi réévaluer les données qu'apporte le frottis cytologique.

D'une manière à peu près systématique, nous avons relevé une similitude extrême entre les quantités de LPN trouvées sur les frottis et sur les coupes, soit dans le cas de pulpite aiguë ou de pulpite chronique avec abcès, soit dans le cas d'aggravation de pulpite chronique allant du grade 1 au grade 5. Dans les cas aigus, les LPN sont plus nombreux que les lymphocytes dans 82% des cas (on a alors une moyenne de 70 LPN pour 28 lymphocytes); ils sont moins nombreux dans 9% des cas; et aussi nombreux dans 9% des cas également.

D'une manière comparable à ce que révèle la classification de Prader,[1] nous avons observé une forte proportion de LPN dans les cas de pulpites aiguës (70% de LPN) ainsi que dans ceux de pulpite chronique avec abcès (55% de LPN). On peut conclure ainsi d'après la répartition de nos cas et leur analyse statistique qu'un frottis cytologique présentant plus de 50% de lymphocytes correspond toujours à une pulpite chronique, cliniquement et histologiquement. Les rares cas cytologiques présentant plus de 80% de lymphocytes ont été diagnostiqués cliniquement comme pulpites chroniques dans 90% des cas. Par contre, un frottis présentant moins de 50% de lymphocytes peut être associé aussi bien à un cas chronique qu'à un cas aigu.

Les moyens cliniques que nous avont utilisés permettent de diagnostiquer à coup sûr une pulpite chronique dans 75% des cas. En appliquant la règle énoncée précédemment qui découle de nos observations cytologiques, le diagnostic clinique est amélioré et devient correct dans 85% des cas. Le résultat que nous obtenons est ainsi très semblable à celui énoncé par Prader.[1] Par contre, nos observations diffèrent sensiblement de celles de Marmasse qui écrit à propos de l'hémopulpogramme: "malheureusement ses indications ne sont pas superposables aux constatations cliniques, à la symptomatologie à laquelle nous nous référons",[2] puisqu'elles sont les unes et les autres complémentaires.

Nous avons trouvé une très bonne relation entre les résultats cytologiques et histologiques. En effet, plus l'infiltration est élevée, plus la proportion de LPN augmente par rapport aux autres cellules blanches, quelque soit la méthode d'étude envisagée, cytologique ou histologique.

Cependant, bien que ce fait illustre une moyenne au niveau des différents cas, le décompte cytologique varie d'une manière non négligeable d'un cas à un autre. Le comptage

cytologique seul ne nous permet pas de poser dans tous les cas le diagnostic précis du type d'inflammation. Il faut donc considérer la cytologie comme un auxiliaire — diagnostic, complément de laboratoire aux tests cliniques disponibles.

Cette étude nous aura aussi permis de considérer comme désuets certains concepts de diagnostic liés empiriquement à l'observation clinique.

Ainsi nous avons déclenché une douleur à la percussion dans presque tous les cas sans que nous ayons pu faire une corrélation entre la réponse à la percussion et le degré d'atteinte pulpaire, ou entre la réponse à un certain type de percussion et un type particulier de pulpite. Devrait-on en conclure — à cause de ces réponses souvent irrationnelles — que la percussion est un appoint seulement anecdotique dans notre arsenal-diagnostic?

De plus, dans le cas de pulpite chronique avec abcès, nous avons observé des crises douloureuses dans 25% des cas mais aussi des douleurs de courte durée stimulées par le froid dans 75% des cas. Le concept associant pulpite ''avancée'' avec ''douleur au chaud'' mériterait peut-être, d'être révisé à la lumière des données obtenues.

Enfin, s'il est vrai que les pulpites chroniques ont révélé des symptomes très différents, et des signes histologiques qui nous ont incité à établir notre propre classification très compartimentée (et présentant des variations telles que nous avons pu compter de 370 à 3.500 leucocytes par mm2 de pulpe), nous avons remarqué une bonne corrélation entre les réponses positives aux stimuli douloureux et la gravité du stade histologique de la pulpite chronique. Ainsi, la douleur pourrait être, en multipliant le nombre des tests, partiellement quantifiable et perdrait par l'analyse, son étiquette d'''essentiellement subjective''.

Ce qui complique le diagnostic — comme le met bien en évidence Massler dans un travail récent[7] — c'est qu'il est difficile de différencier cliniquement une lésion pulpaire active d'une lésion déjà en voie de guérison. Les cas ''d'hyperémie'' se classifient probablement dans une telle catégorie mixte. En effet, au cours de notre étude, l'hyperémie s'est signalée par des crises douloureuses dans 50% des cas, et les autres cas se sont révélés tout à fait asymptomatiques. Aucun cas d'hypérémie n'a pu, on l'a noté, être diagnostiqué cliniquement avec succès. Peut-être est-ce à cause de son comportement clinique imprévisible que ''l'hyperémie pulpaire'' n'est pas toujours reconnue comme une entité pathologique. Elle prend l'allure tantôt du premier stade de l'inflammation, ou — à cause des signes de vieillissement pulpaire, fibrose et calcification — d'un état pathologique transitoire évoluant dans un tableau inflammatoire plus complexe.

L'hyperémie est décrite classiquement comme une lésion réversible. Mais, à l'avenir, peut-être faudra-t-il même modifier la plus simpliste des classifications cliniques qui catalogue la pulpe malade en pulpe atteinte de pulpite ''réversible'' ou ''irréversible''. Le terme ''réversible'' est le plus souvent inadapté, car dans la pulpe on n'observe qu'exceptionnellement une lésion sans cicatrice. Les termes ''irréversible'' et ''guérissable'' semblent scientifiquement mieux adaptés.

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Literature Review

CHLORHEXIDINE: AN IDEAL PLAQUE INHIBITING AGENT?

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Chlorhexidine has been shown to be an effective agent in inhibiting dental plaque formation. This article reviews the literature on chlorhexidine covering various parameters such as mechanisms of action, bacterial spectrum, toxicity, side effects and clinical usage.

Dental research in recent years has implicated oral bacteria and their metabolic products including plaque as major etiologic factors in the pathogenesis of periodontal disease[1-4] and caries.[5-7] For this reason, dental scientists have been investigating the possibility of a chemotherapeutic agent to inhibit the accumulation of plaque on teeth. Chlorhexidine has received intensive investigation for this purpose.[8]

Fitzgerald[9] outlined the following criteria for an ideal anti-caries agent:

1. Should not be used for treatment of other diseases.
2. Should be stable in storage, unaffected by components of the vehicle and active over the pH range and other ambient conditions encountered in the dental plaque.
3. Should adsorb to teeth or plaque without loss of activity.
4. Should have a narrow antibacterial spectrum.
5. Should be rapidly bactericidal against both resting and multiplying organisms and should have a low potential for inducing the emergence of resistance in the microflora.
6. Should be non-toxic, non-allergenic, non-absorbable and have acceptable organoleptic properties.
7. Should be biodegradable or destroyed in the gastrointestinal tract if injested.
8. Should be inexpensive and easy to produce.

These qualities would also apply to an ideal plaque inhibiting agent and chlorhexidine will be discussed in this context.

Medical usage

Preliminary research for an anti-malarial drug led to the development of chlorhexidine.[10] It was introduced over 25 years ago by Imperial Chemical Industries (Macclesfield, England) as Hibitane, and first used in 1953 as an antiseptic cream and later as an obstetric cream.[11] Since that time chlorhexidine has been used as a pre-surgical general disinfectant[12-14] and as an antiseptic in gynaecology, urology, ophthalmology and the treatment of burns.[15] In dentistry the original use was as an antiseptic in endodontic procedures.[16] Ineffective systemically, its use has been limited to topical applications,[11] which led to use as a handscrub.[13,14] Only recently, I.C.I. has introduced a soap containing chlorhexidine, called Hibiscrub, to be used as a pre-surgical hand wash.[15]

Stability

The effectiveness of chlorhexidine has been found to be unaffected by storage time[17] or temperature.[18] Acceptable and effective vehicles of delivery include topical gels[19-21] dentifrices[22-24] and oral rinses.[20,21,25] Fifteen to 30 per cent of chlorhexidine is retained in the mouth.[17,26] However, the retention is pH dependent.[18,27] Below pH 3 there is impaired oral retention[18,28,29] and decreased plaque inhibiting effect.[27,28] This seems insignificant due to the fact that the average plaque resting pH is 7-8,[30] average salivary resting pH is between 6 and 7[30] and even in the presence of sucrose, plaque pH usually only reaches about pH 4.[30,31] Also, chlorhexidine prevents the usual fall in pH associated with sucrose rinses.[32] Increased pH has little effect on retention.[18,29] Even though chlorhexidine is water soluble,[33] once adsorbed, it resists displacement by further rinses with water.[26,34]

Bacterial spectrum and bacterial effect

Chlorhexidine has a wide spectrum of activity, effective against gram-positive and gram-negative bacteria,[12,35] yeast and fungi[36,37] and facultative anaerobes and aerobes.[37,38]

At physiological pH, bacteria have a negatively charged surface and chlorhexidine binds to this[38-40] and, depending

on concentration, it may exert a bacteriostatic or bactericidal effect.[35] Bacteriostatic levels (4-32 μg/ml)[41,42] disrupt the osmotic regulation and enzyme co-ordination,[40,43] causing immediate membrane permeability,[39] resulting in initial rapid release of cell constituents followed by secondary slow release.[41,44] At higher concentrations, which tend to be more variable,[12] chlorhexidine exerts a bactericidal effect by precipitating the cytoplasmic proteins of the bacteria[38,43] and a secondary slow release does not occur.[43]

The bactericidal effect is less important than the bacteriostasis provided by slow release[45] but the loss of cytoplasmic components is not thought to be the primary antibacterial mechanism of chlorhexidine.[41,46] Initial results of experiments by Schiott et al[47,48] indicated a reduction in the number of viable salivary bacteria of 80-90 per cent after chlorhexidine rinses. However, later results of a two-year study reported by the same investigators indicated an average reduction of 30-50 per cent.[49] Of the cultivatable bacteria from the oral cavity 98 per cent are inhibited *in vitro* by 4 μg/ml of chlorhexidine.[35,48]

Regardless of whether there is a reduction of 30 or 80 per cent, there still remains a large number of viable bacteria that could colonize the tooth surface[48,50] but do not, indicating that the plaque inhibiting capacity of chlorhexidine is greater than can be accounted for on the basis of the antibacterial activity.[47,48,51] This additional plaque inhibiting property of chlorhexidine is related to the binding to negative charges of extracellular polysaccharides, pellicle and hydroxyapatite, thus changing the surface energy and charge[52-54] and rendering them less receptive to bacterial colonization.[38,54] Some bacterial cells also have changed surface properties[43,44] and an impaired ability to adhere.[55,56]

Streptococcus mutans has been implicated in the etiology of caries[57,58] and *Actinomyces viscosus* in the etiology of periodontal disease.[59,60] *In vitro* chlorhexidine is completely effective in inhibiting *Streptococcus mutans* and *Actinomyces viscosus* and two two-minute exposures to 0.2 per cent chlorhexidine is bacteriocidal for both.[61] In fact, both are particularly sensitive due to the binding of chlorhexidine to their insoluble extracellular polysaccharides.[27,29,35,62] There is decreased colonization of *Stretococcus mutans* even in the presence of sucrose,[55,56] and decreased numbers of *Streptococcus mutans in vivo*, especially in situations with high initial counts.[37]

Repeated utilization of an antimicrobial agent incorporates the risk of bacteria developing resistance or a shift in the flora.[8] The overgrowth of fungi encountered with the use of some antibiotics is not a problem because chlorhexidine is also a potent fungicidal agent.[36,37]

The use of chlorhexidine in beagle dogs caused a shift to a predominance of gram negative rods, which are known to be less sensitive, and plaque developed after six months' use.[63,64] Attempts have been made to identify this change in man, however, it has not been observed even after two years of continuous use.[38,47,49]

As early as 1954, attempts to demonstrate development of drug resistance were unsuccessful.[12] Hennessey[35] attempted to demonstrate *Escherichia coli* and oral streptococci resistant to chlorhexidine by serial passage of sub-inhibiting concentrations *in vitro* and found the development of resistance to be very rare. There has been some alteration in susceptibility of oral organisms such as *Streptococcus sanguis* which was noticed to increase in number,[44] but even this was relatively inconspicuous and transient.[35,42] Overall, the development of bacterial tolerance, resistance, shift or significant alteration in numerical proportions or intraoral distribution was negative or inconspicuous [37,48,49,53,65] and plaque inhibiting potency was retained over a two-year period.[49,53] When the use of chlorhexidine is discontinued, even after two years' use, the suppression effect is lost in 24 hours and the usual level of oral bacteria is completely re-established in two days.[20,66] Therefore, there seems to be no significant change in the ecology of the oral flora with prolonged use.[47]

Mechanism of action

The plaque preventing ability may be due to the local antibacterial action of chlorhexidine bound to organic and inorganic components on the tooth surface,[50,52,67,68] where it forms a reservoir for slow release and prolonged activity.[27,34,43,45] Most binding occurs in 15-30 seconds[26] and up to ⅓ of the chlorhexidine is adsorbed[17,26,27] but the amount retained is proportional to the concentration.[18] C^{14}-chlorhexidine studies have shown the presence of bacteriostatic levels for up to 24 hours[21,27] after oral rinses.

Being a strong base,[43] chlorhexidine binds to the negative charges of bacteria[35,40,43] their extracellular polysaccharides,[27,38,62] acid molecules (proteins, polysaccharides and glycoproteins) of saliva,[27,29] pellicle, plaque, mucous membrane,[34,67,69] and to the negative charged surface of hydroxyapatite.[52,69,70] However, it does not seem to bind to hydroxyapatite as strongly as to the others.[62]

Chlorhexidine forms reversible ionic bonds to the carboxy groups[71] of aspartic, glutamic and sialic acids of salivary mucins coating oral soft tissues which probably form the largest reservoir for slow release of the agent.[67] This bond resists water rinses[26] but the chlorhexidine is released as the concentration in the environment decreases.[67] Calcium[71] and acids[18] cause ionic displacement of chlorhexidine from the negative charged groups which is the suspected mechanism for slow release and prolonged introoral effect.[67]

Toxicity and metabolism

After 24 years of use in a variety of applications, chlorhexidine has a remarkably clean record.[8,11] Orally, 15-30 per cent is adsorbed and released and likely swallowed;[26] however, there is no absorption through oral tissues.[72]

Foulkes[11] demonstrated the very low oral toxicity of chlorhexidine ($L.D._{50}$ 1800 mg/kg), compared to the much higher systemic toxicity ($L.D._{50}$ 22 mg/kg) in mice. There have been fewer than 10 suspected cases of allergic reactions

after 20 years and some of these were not confirmed.[11,73] Carcinogenic or teratogenic effects have not been demonstrated after prolonged applications in animals.[8] There is minimal metabolic cleavage and no evidence of formation of the suspected carcinogen parachloroaniline.[73]

Mobacken and Wengstrom[74] reported that after treatment with chlorhexidine there was a significant impairment in the healing of sutured skin wounds as measured by tensile strength. However, in other studies of healing gingival wounds in dogs no microscopic or gross changes were noted to suggest impaired healing in the presence of chlorhexidine.[75,76] Perhaps the keratinized epithelium aids in protecting the underlying connective tissue cells from any harmful effects of the drug.

A recent investigation studied the effect of chlorhexidine on human gingival fibroblasts and Hela cells grown in cell culture.[77] Exposure of these cells to concentrations of chlorhexidine equal to or greater than 0.01 per cent resulted in the death of these cells.

Schiott, Loe and Briner[78] examined 61 patients who rinsed daily with 0.02 per cent chlorhexidine gluconate for two years. They measured haemoglobin, methaemoglobin, sedimentation rate, number of erythrocytes and white cell counts, examined urine for protein and glucose, and tested liver and kidney function. All tests were negative and within normal range or returned to normal. There is no evidence of permanent retention in the body.[65,73] Chlorhexidine is poorly absorbed and 90-99 per cent is recovered unchanged in the faeces and urine.[17,73] The small amount that is absorbed passes through the liver and kidney in the usual manner and is excreted via normal pathways.[65]

Oral side effects

There have been a few reports of minor soreness and desquamation of oral tissues,[25,79,80] which might have been due to precipitation of salivary mucins usually coating and protecting the oral mucosa. On the other hand, a 20 per cent topical solution in monkeys produced no differences in keratinization and no visible side effects in the tissue.[19] Prolonged use of chlorhexidine had no significant effect on epithelium examined histologically and histochemically.[81,82] No changes were found in the normal structure of keratinizing oral epithelium when the stratum corneum and amount of keratinization were examined histologically by Mackenzie et al[83] on a group of students using chlorhexidine over a two-year period.

Chlorhexidine has an affinity for and stains silicate restorations,[25,69,80] teeth,[67,79] and papillae of tongue.[21,83] The stained areas have high concentrations of chlorhexidine[69] and the staining may be due to mucin salts or by-products of chlorhexidine.[67] Larger, less concentrated volumes are still clinically effective and create less staining.[84] The staining can be prevented by normal methods of oral hygiene coincident with chlorhexidine application and the stain can be removed by tooth brushing or polishing.[85]

Another complication of chlorhexidine therapy has been the bitter taste.[21,80,86] However, the taste can be camouflaged with flavouring agents.[25] An associated change in normal taste sensation[21,83] has been noted, although, in a recent two-year study of 54 patients who brushed and rinsed with chlorhexidine, there was no report of damage to taste sensation in the participants.[85]

Clinical effectiveness

Researchers have found oral rinses, dentifrices and topical gels to be clinically effective. Dentifrices 0.6 per cent to 0.8 per cent[22,23,25] effectively reduce plaque and gingivitis. Oral rinses 0.2 per cent twice a day[21] and topical gels 2.0 per cent once a day[19,50] were effective in inhibiting the development of plaque and gingivitis in the absence of any form of mechanical oral hygiene.

A study on monkeys involved swabbing the teeth and gingiva with cotton swabs dipped in chlorhexidine plus flossing interproximal areas with dental floss soaked in chlorhexidine. Results indicated almost complete cessation of plaque formation. The additional use of proximal flossing with dental floss soaked in the inhibitor was more effective than oral swabbing alone.[87] These methods, however, are not effective on subgingival plaque.[72] Oral irrigators are effective[84] and pocket irrigation with 2.0 per cent chlorhexidine was reported to eliminate 90 per cent of subgingival bacteria.[88] Chlorhexidine cannot penetrate plaque and is not very effective in dispersing established plaques.[89,90] The plaque inhibiting potential of chlorhexidine is not lost over prolonged periods of use.[53]

The effect on calculus is still a controversial question. Most reports indicate an inhibition of supra-gingival calculus and no effect on sub-gingival calculus.[20,67,72,83,91] However, Loe[85] reported an increase in the calculus index on patients using chlorhexidine. He thought it may be the result of incremental build-up and hardening of stain in the gingival third of the crowns.

The formation of plaque and development of experimental white spot lesions in man has been prevented even in the presence of sucrose rinses.[92,93] Chlorhexidine is more effective in inhibiting smooth surface caries than fissure caries in animals.[33]

Chlorhexidine has been used successfully in the treatment of acute necrotizing ulcerative gingivitis,[15] aphthous ulcers,[94] and has accelerated the rate of healing by reducing the bacterial colonization on teeth after periodontal surgery in man.[45,89] Postoperatively, these patients were observed to have less gingival exudate, less bleeding and less pain. Wolfram et al[96] reported decreased sulcus depth and sometimes disappearance of a sulcus with chlorhexidine use. Its use as a mouthrinse and dentifrice also effected a drastic reduction in plaque and gingivitis in mentally retarded children,[79] and decreased gingival hyperplasia in epileptic patients receiving phenytoin medication.[24]

A study by Asboe-Jörgensen et al[89] evaluated the effect of a chlorhexidine dressing on gingival healing after periodontal surgery. The results indicated that adding chlorhexidine to the dressing resulted in less gingival exudate and bleeding and increased healing rate as compared to operative sites where a placebo dressing was placed.

Availability

The introduction of any new drug into human medicine is always, from a toxicity standpoint, a move into the unknown. Despite the most exhaustive safety testing in a wide range of animal species, there will always remain the possibility that man may react adversely to the new entity. The toxicologist therefore can only provide a confident guess rather than an unequivocal statement of its safety.[11]

Mouthrinses and dentifrices containing chlorhexidine are marketed in some European countries. Ayerst manufactures throat lozenges, Kryl and Hibitane; which contain chlorhexidine. They are used for minor infections of the throat and mouth and are commercially available in Canada. At the present time, no company has manufactured a mouthrinse or dentifrice containing chlorhexidine for the Canadian market.

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ONTARIO —Associateship available in well-established preventive practice situated in growing community of 68,000, 20 minutes from Hamilton and 1 hour from Toronto. This is a full-time position in a 3-operatory office, available late April - early May, 1978, with future partnership potential. Congenial, conscientious staff. Reply to CDA Box Number 1763.

ONTARIO — Winchester. Associate required for established associateship practice in Winchester, 30 miles south of Ottawa. Available immediately on a full- or part-time basis. Modern 2000 sq. ft. office with six operatories, Cox equipment, Panelipse, and large lab area. Office includes Hygienist and Denture Therapist. Good opportunity. Contact: Dr. R.D. Wells, (613) 774-2616, or write: Box 729, Winchester, Ont., K0C 2K0.

NOVA SCOTIA — Associate required to assume a busy practice in modern office within 15 miles of Halifax. High gross in a rapidly growing residential area. Attractice terms available. Option to buy after first year. Reply to CDA Box Number 1766.

THE UNIVERSITY OF BRITISH COLUMBIA

Applications are now being accepted for a combined 34-month graduate program leading to specialty certification in periodontics and an M.Sc. degree in Dental Science. A 24-month certificate program in periodontics is also available. Both programs are planned to commence September 1978. For further information please contact Dr. A.L. Ogilvie, Department of Oral Medicine, Faculty of Dentistry, The University of British Columbia, 2075 Wesbrook Place, Vancouver, B.C., Canada V6T 1W5.

Open to both men and women

Appel de candidatures mixtes

Public Service Canada / Fonction publique Canada

Health and Welfare Canada
Medical Services Branch
Pacific Region, Hazelton, B.C.

FIELD DENTAL OFFICER

Salary: $26,499 to $32,952
(Plus Isolated Post Allowance)
Ref. No: 78-V-NHW-1

Duties
Provides basic dental care, including restorations, extractions, prophylaxis, and topical fluoride applications, for Indian people in the Hazelton area and in remote or isolated areas of North West British Columbia. Using portable dental equipment sets up and operates field dental clinics, and conducts a dental health education program.

Qualifications
A current licence to practice dentistry in a province of Canada and knowledge of the English language are essential Ability to work with children is a requirement.

Other Information
Hazelton is a small community, on a main highway, in North Central B.C. Most work is within driving distance of Hazelton, however, several locations are reached by small aircraft. For more information call Dr. J.P. Moran (604) 666-3225, Vancouver.

How to Apply
Send application form and/or résumé to:

Public Service Commission of Canada
Suite 500, 1055 West Georgia Street
Vancouver V6E 3L4

Closing Date: February 28, 1978
Please quote the applicable reference number at all times.

Santé et bien-être social Canada
Direction générale des soins médicaux
Région du Pacific, Hazelton (C.B.)

DENTISTE ITINÉRENT

Traitement : $26 499 — $32 952
(plus indemnité de poste éloigné)
No de référence : 78-V-NHW-1

Fonctions
Assurer un service de soins dentaires de base, y compris la réparation, l'extraction et le traitement prophylactique des dents ainsi que l'application topique du fluor aux Indiens de la région de Hazelton et des régions reculées ou isolées du nord-ouest de la Colombie-Britanique. En utilisant un équipement portatif, établir des cliniques dentaires et en assurer le fonctionnement sur place ainsi que mettre sur pied un programme d'information en hygiène dentaire.

Conditions de candidature
Un permis d'exercer l'art dentaire dans une province du Canada et la connaissance de l'anglais sont essentiels pour ce poste. De plus, le titulaire doit être capable de travailler avec les enfants.

Renseignements complémentaires
Hazelton est une petite localité située sur la grand-route dans le centre-nord de la Colombie-Britannique. Il est possible de se rendre rapidement en voiture dans la plupart des localités où se fait la majeure partie du travail. Cependant, il faut utiliser de petits aéronefs pour se rendre à plusieurs autres endroits. Pour obtenir de plus amples renseignements, communiquer avec le docteur J.P. Moran ((604) 666-3225) à Vancouver.

Comment se porter candidat
Envoyez votre demande d'emploi ou votre curriculum vitae à :

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Suite 500, 1055 ouest, rue Georgia
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OPPORTUNITIES WANTED

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PAEDODONTIST, aged 27, married, completing two year board-approved specialty program June 1978. Seeking associateship and/or partnership with paedodontist or group. Passed Canadian National Dental Examining Board. Curriculum Vitae on request. Reply to CDA Box Number 1756.

ORAL SURGEON, aged 34, family, completing Board-approved residency June 1978 in New York. Extensive training in all phases of oral and maxillofacial surgery and general anesthesia. Have passed C.N.D.E.B. Seeks association in Ottawa or Montreal region, will consider other areas. Reply to CDA Box Number 1738.

PAEDODONTIST —Aged 28, married, completing two-year hospital residency (7/1/'78). Excellent background in anaesthesia, handicapped patients, orthodontics. Private practice experience, passed N.D.E.B.'s. Desires associateship or purchasing of private practice in small community. Mountainous area preferred, but will consider any province. Contact: Dr. Gary Breen, 2171 South Commons Road, Reynoldsburg, Ohio, 43068, U.S.A., or phone: (614) 866-1391.

OPPORTUNITIES AVAILABLE

BRITISH COLUMBIA — Vancouver. University of British Columbia, Department of Oral Surgery. Applications are invited for a full-time position of Assistant and Associate Professor in the Department of Oral Surgery, Faculty of Dentistry, University of British Columbia, Vancouver, British Columbia. The academic rank and salary of this position are open for negotiation on the basis of excellence, qualifications and experience. This position includes responsibilities in both undergraduate and graduate Oral Surgery teaching, in Hospital Dentistry training; in research activity and in University Committee work. Applicants should have completed an accredited Oral Surgery specialty programme and be eligible for specialty certification by the College of Dental Surgeons of British Columbia. Please send letters of application together with a curriculum vitae to: Dr. David T. Zack, Assistant Dean, Faculty of Dentistry, University of British Columbia, 2075 Wesbrook Place, Vancouver, B.C., V6T 1W5.

BRITISH COLUMBIA — Vancouver. The University of British Columbia, Faculty of Dentistry. Applications are invited for the full-time position of Assistant Professor in the Department of Oral Medicine, University of British Columbia, Vancouver, Canada, to participate in the teaching of Oral Medicine/Oral Diagnosis. Candidates should have had postgraduate training in hospital dentistry and oral diagnosis. Salary (minimum $24,000) negotiable according to qualifications and experience. Applications should be sent to: Dr. J.D. Spouge, Professor and Head, Department or Oral Medicine, Faculty of Dentistry, University of British Columbia, Vancouver, B.C., V6T 1W5.

ALBERTA — Pincher Creek. Hygienist and certified intra-oral assistant needed immediately in modern three-dentist practice close to major city. Salary and benefits negotiable. All auxiliaries get a profit share. Please reply in writing to Box 820, Pincher Creek, Alberta. T0K 1W0 or Phone: (403) 627-3290.

MANITOBA — Winnipeg. The University of Manitoba, Department of Oral Biology has an opening for an Oral Pathologist, rank and salary dependent upon qualifications and experience. Applicants should be capable of coordinating and teaching courses in oral pathology and general pathology at the graduate and undergraduate levels and conducting research. At present the department operates a biopsy service for which the applicant may also have responsibility. Applicants should be eligible for registration as an oral pathologist in the Province of Manitoba. Deadline for applications, when position is filled. Applications with curriculum vitae and names of three referees should be forwarded to: Dr. Christopher Lavelle, Department of Oral Biology, Faculty of Dentistry, the University of Manitoba, Winnipeg, Man., R3E 0W3.

MANITOBA — Winnipeg. Oral Surgeon-specialist required for Winnipeg, Manitoba practice. Object partnership. Candidate must take Manitoba Dental Association examination. Submit curriculum vitae and recent photo to CDA Box Number 1749.

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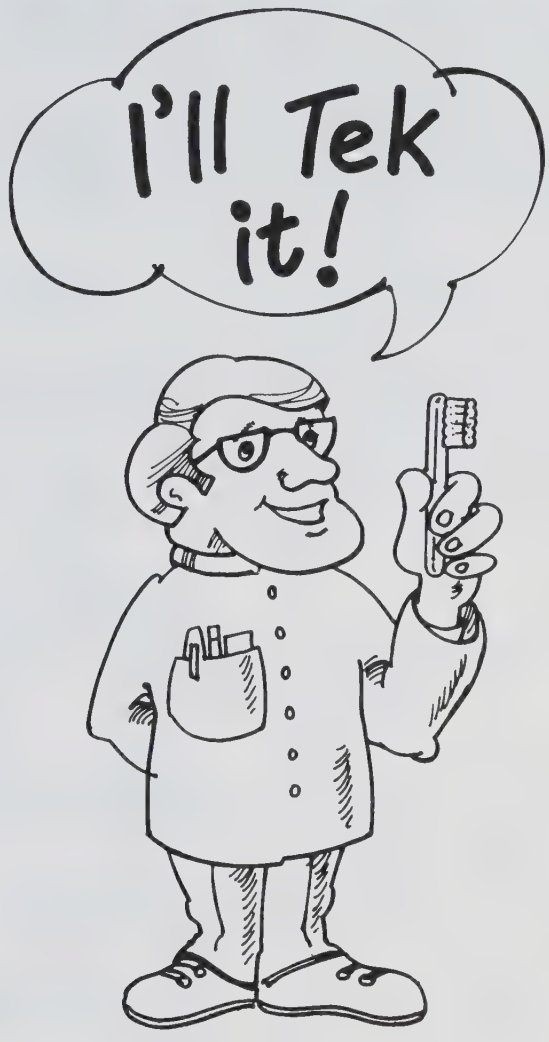

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ONTARIO — University of Toronto. Faculty of Dentistry seeks applications for the position of Associate Professor of Microbiology within the tenure stream. Responsibilities will include (1) teaching microbiology and periodontology at both the undergraduate and postgraduate levels and (2) directing and conducting basic and applied research into the microbial etiology of dental diseases. Applicants should hold a professional degree in dentistry and a Ph.D. or its equivalent and should have demonstrated broad teaching and research experience in oral microbiology. Applications must be received by April 30, 1978. Effective date of appointment: July 1, 1978. Send curriculum vitae and names of three referees to: Dr. M. Jackson, Chairman, Microbiology Search Committee, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto, Ont., M5G 1G6.

ONTARIO — University of Toronto. Faculty of Dentistry. Applications are invited for a full-time tenure-stream appointment in the field of Dental Anatomy and Dental Anthropology. The appointment will be at the Associate Professor level with salary according to qualifications and experience. Duties will include the teaching of dental anatomy and dental anthropology to undergraduate and graduate dental students and the conduct of research in the subjects. Candidates should preferably hold a dental degree and a doctoral degree in Anatomy or Anthropology. They should also demonstrate competence in teaching and research. Please submit application with curriculum vitae and the names of three referees by April 15, 1978 to: Professor A.M. Hunt, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto, Ont., M5G 1G6. The appointment will be in effect July 1, 1978.

THE SASKATCHEWAN DENTAL PLAN REQUIRES DENTISTS

The Saskatchewan Department of Health has several positions in various locations available to dentists interested in the Saskatchewan Dental Plan for Children.

These positions which are to be established during 1978 will offer an opportunity for members of the dental profession to become involved in North America's first province wide publicly run Dental Program for Children.

A team approach is used to deliver both preventive and treatment care services to children up to 12 years of age. Saskatchewan Dental Nurses, Certified Dental Assistants and dentists together with supportive staff make up the teams.

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Eligible for registration with College of Dental Surgeons of Saskatchewan.*

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*Graduates of Canadian Dental Schools and *Accredited United States Dental Schools after 1948,* can register in Saskatchewan without further examination.

For information and application forms, write to:

Director, Saskatchewan Dental Plan,
Department of Health,
3211 Albert Street,
REGINA, Saskatchewan
S4S 0A6
Phone (306) 527-1648

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas. Locations are available throughout Ontario. Incentive grants, payable over four years, are $18,000 in Northern Ontario, and $14,000 in Southern Ontario. Alternatively, a guarantee net professional income of $28,000 per annum is offered in Northern Ontario. A limited number of salaried positions are open on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 7 Overlea Blvd., Toronto, Ont. M4H 1A9. Phone: (416) 965-5036.

ONTARIO — Toronto. Oral Surgeon wanted for busy General Practice in Toronto and vicinity. A knowledge of general anaesthesia essential. Send resume to CDA Box Number 1748.

ONTARIO — Guelph. Interesting and rewarding full-time position open for provision of dental treatment services in a Correctional Institution in Guelph. Good salary plus benefits. Similar positions available in other locations from time to time. Call or write to: Dr. C.H.M. Williams, Dental Consultant, or Dr. Paul Humphries, Senior Medical Consultant, Ministry of Correctional Services, 2001 Eglinton Avenue East, Scarborough, Ontario M1L 4P1. Phone: (416) 965-6491.

JAMAICA CUSO DENTISTS: Four Dentists are needed for Jamaica. Some of their duties might include supervision of graduate dental nurses and assistants or formal lecturing, supervision and examination of student dental auxiliaries along with some practice of dental therapy. Two Dentists are required for a rural community dental health programme and two are needed for the Dental Auxiliary School in Kingston, Jamaica. For detailed job descriptions please contact: CUSO Health — 102, 151 Slater St., Ottawa, Ont., K1P 5H5.

EQUIPMENT FOR SALE

BRITISH COLUMBIA — Victoria. Take over last 2 years of a 7 year lease on any of the following: 1 Dental-Eze chair top and pump base; 5 Steno chairs; 2 Artificial office plants; 1 Adding machine; 1 Procomat developer; 1 Harvey Sterilizer; 1 FM receiver; 1 Small Westinghouse refrigerator; 1 Cox lab unit; 1 Telephone answering machine; 1 Projector with head set and educational films. Contact: Fort Street Dental Associates, 1958 Fort Street, Victoria, B.C., V8R 1K3, or phone: (604) 592-2494.

MANITOBA — Winnipeg. For Sale: One Ritter 180 Unit and chair, (electric). Dentsply Split Spectrum Mediterranean Design, (front side and rear delivery). Equipment used 32 weeks — 40-45 per cent savings off new price — surplus equipment from rural clinic. Please contact: Dr. Robert Kirouac, 1-130 Marion Street, Winnipeg, Manitoba, R2H 0T4, or phone: (204) 247-4854 or 247-4855.

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ONTARIO — Scarborough. USED DENTAL EQUIPMENT wanted, but useable for foreign missions. Depreciated value paid. Contact: Missions Equipment Buyers, 58 Landfair Crescent, Scarborough, Ont.

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MEETINGS

CANADIAN ACADEMY OF PERIODONTOLOGY — Quebec Association of Periodontists, Annual Meeting May 26-28, Hotel L'Esterel (Laurentians) — Dr. Fermin Carranza. Information Dr. M. Stutman, 4141 Sherbrooke St. W., Suite 535, Montreal, Quebec H3Z 1B8.

THE UNIVERSITY OF BRITISH COLUMBIA

FACULTY OF DENTISTRY

Applications are invited for the full-time position of Assistant Professor in the Department of Oral Medicine, University of British Columbia, Vancouver, Canada, to participate in the teaching of Oral Medicine/Oral Diagnosis. Candidates should have had postgraduate training in hospital dentistry and oral diagnosis.

Salary (minimum $24,000) negotiable according to qualifications and experience.

Applications should be sent to:

Dr. J. D. Spouge,
Professor and Head,
Department of Oral Medicine,
Faculty of Dentistry,
University of British Columbia,
Vancouver, B.C. V6T 1W5

THE UNIVERSITY OF BRITISH COLUMBIA

FACULTY OF DENTISTRY

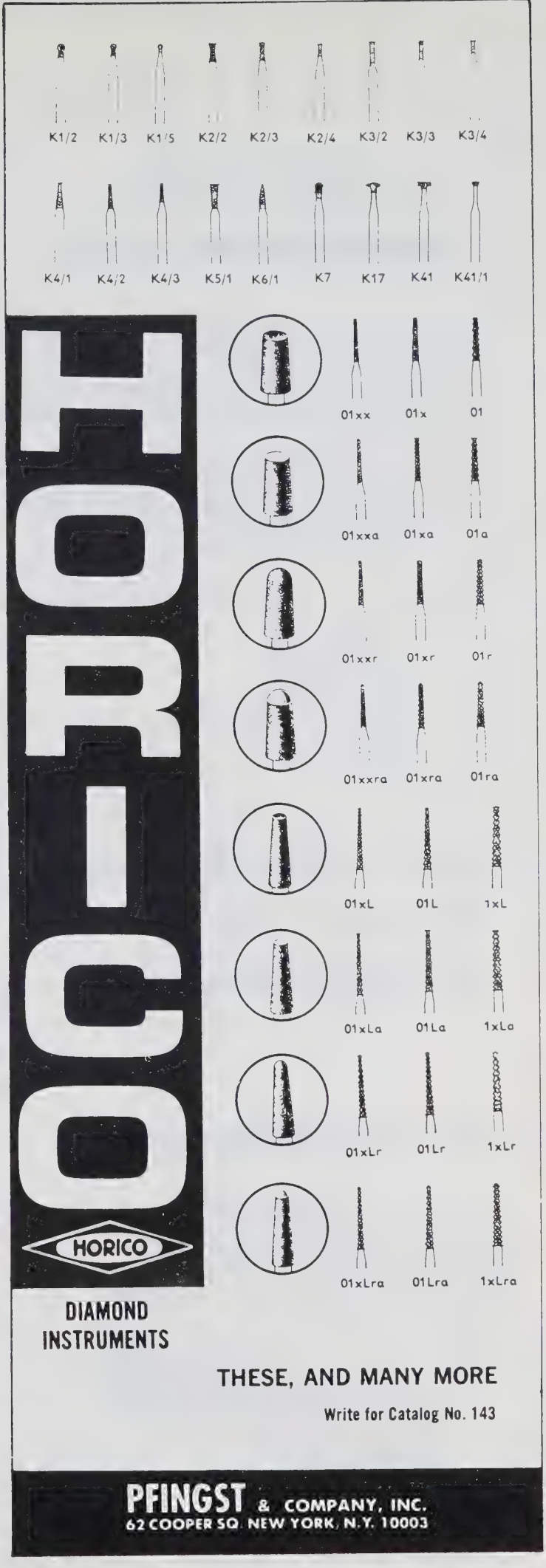
NOTICE OF VACANCY
PERIODONTICS

The Department of Oral Medicine, University of British Columbia, will have an opening at the rank of Assistant Professor on July 1, 1978. Salary is $24,000 - $27,000, depending on background and experience.

Qualifications should include graduate certificate training in Periodontics. Candidates must be eligible for specialty certification by the College of Dental Surgeons of British Columbia and either the American Board of Periodontology or the National Dental Examining Board of Canada.

Please submit enquiries, with curriculum vitae, to:

Dr. John D. Spouge
Department of Oral Medicine
Faculty of Dentistry
University of British Columbia
2075 Wesbrook Place
Vancouver, British Columbia
Canada V6T 1W5



UNIVERSITY OF BRITISH COLUMBIA

DEPARTMENT OF ORAL SURGERY

Applications are invited for a full-time position of Assistant or Associate Professor in the Department of Oral Surgery, Faculty of Dentistry, University of British Columbia, Vancouver, B.C., Canada. The academic rank and salary of this position are open for negotiation on the basis of excellence, qualifications and experience.

This position includes responsibilities in both undergraduate and graduate Oral Surgery teaching; in Hospital Dentistry training; in research activity and in University Committee work. Applicants should have completed an accredited Oral Surgery specialty programme and be eligible for specialty certification by the College of Dental Surgeons of British Columbia.

Please send letters of application together with a curriculum vitae to:

Dr. David T. Zack
Assistant Dean
Faculty of Dentistry
University of British Columbia
2075 Wesbrook Place
Vancouver, B.C.
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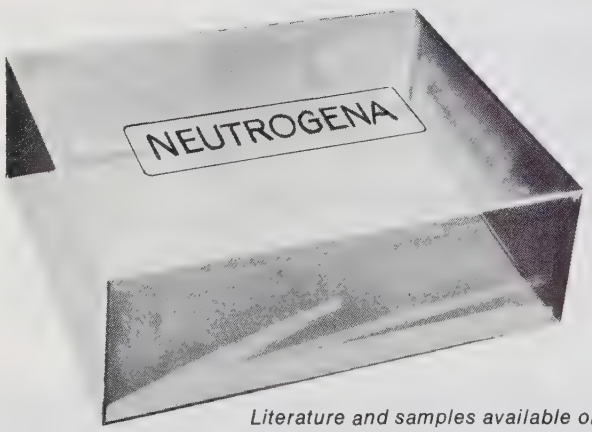

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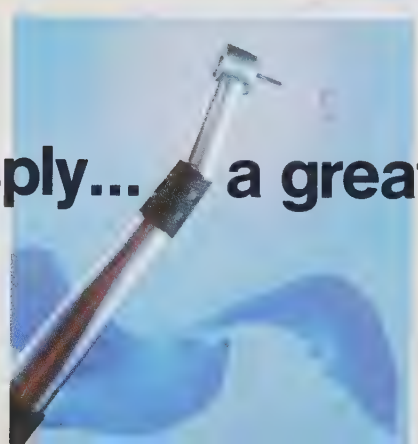

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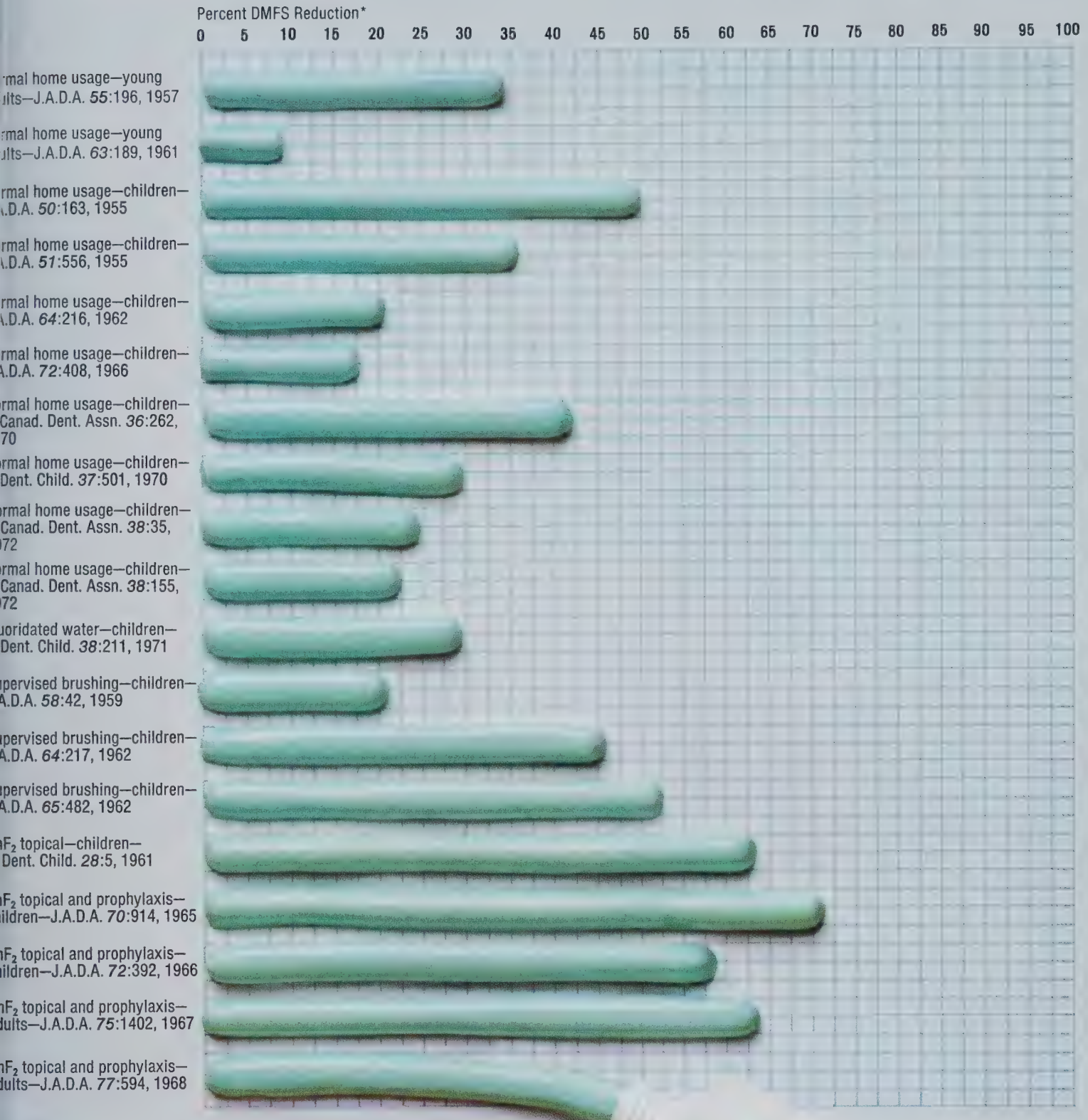

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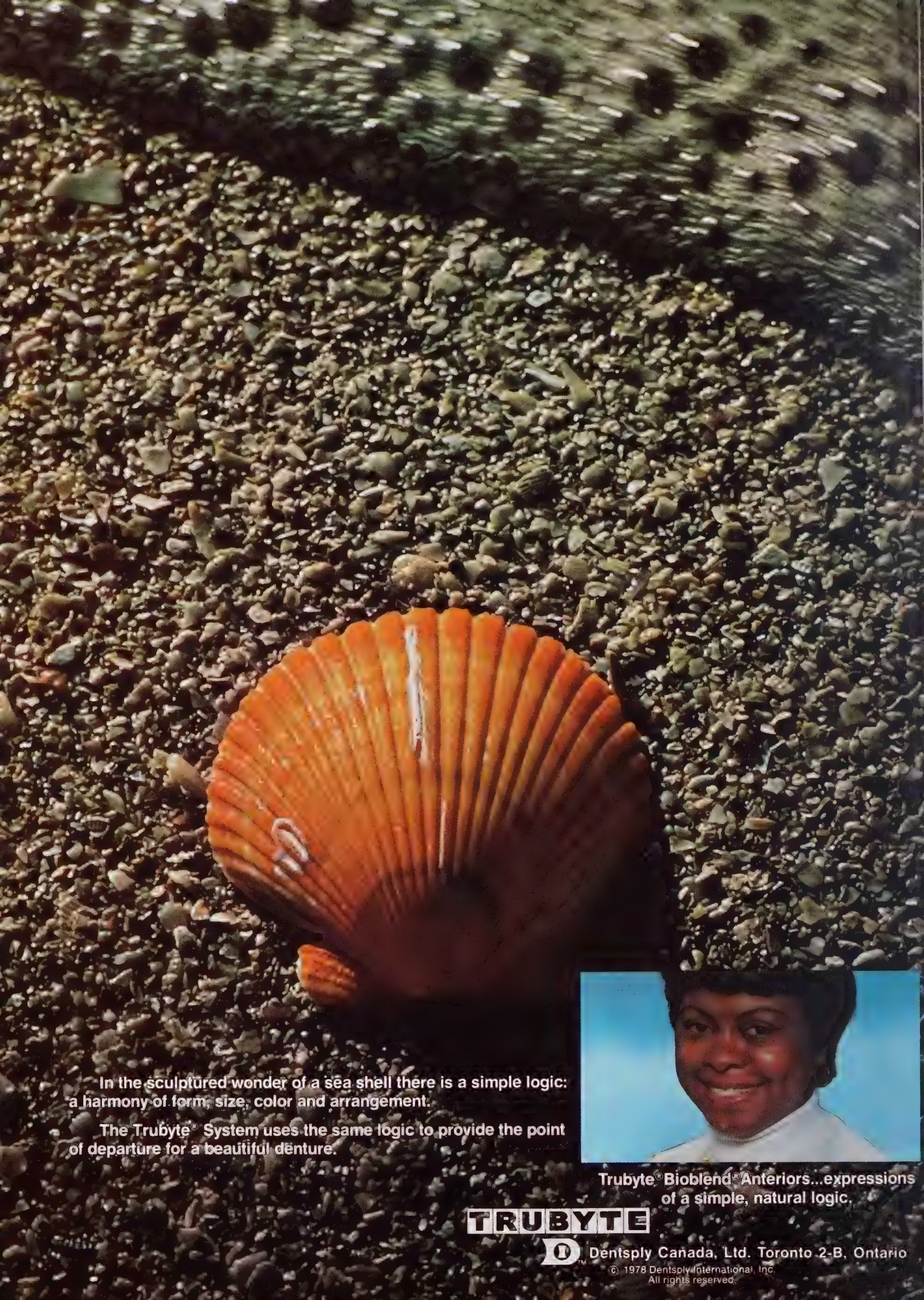

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JOURNAL

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March/Mars 1978/Volume 44/No 3

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Le représentant aux E.U.: Medical Media, Wm. McCausland, Ed. Goedeke, Box 101, Pitman, N.J. 08071. Téléphone: 609-589-5454.

La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13. Contact: Dr. Ralph Crawford, Convention Chairman, Manitoba Dental Association, 308 Kennedy Street, Winnipeg, R3B 2M6.

Canadian Meetings

1978 Annual Teaching Conference, jointly sponsored by the Association of Canadian Faculties of Dentistry and the Canadian Dental Association, at CDA Headquarters, 1815 Alta Vista Drive, Ottawa, Ontario, March 27, 1978. Topic is ''Hospital Dentistry''. Contact: Dr. R. I. Brooke, Department of Oral Medicine, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Alpha Omega Dental Fraternity Ladies' 9th Annual Art Show Sale and Auction, Edwards Gardens, Toronto, April 15-16, 1978. Featuring Ken Danby, Glen Loates, A. J. Casson, G. Iskowitz, R. Letendre, N. Morrisseau, etc. Proceeds in aid of Dental Education. For information, contact: Mrs. P. Chapnick (416) 223-5478.

Ontario Dental Association and the Dental Society of the State of New York, Joint Convention, Sheraton Centre, Toronto, May 14-17, 1978. Contact: Mrs. W. C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Canadian Academy of Periodontology/Quebec Association of Periodontists, Annual Meeting, Hotel l'Esteral (Laurentians), May 26-28, 1978. Speaker, Dr. Fermin Carranza of California. Contact: Dr. M. Stutman, 4141 Sherbrooke St. West, Suite 535, Montreal, Quebec, H3Z 1B8.

Les Journées Dentaires du Québec, Quebec Hilton Hotel, Quebec City, May 28-31, 1978. Contact: Dr. R. M. Lang, 5171 Decarie Blvd., Montreal, Quebec H3W 3C2.

Alberta Dental Association Convention, Jasper, Alberta, May 28-31, 1978. Contact: Dr. G. D. Harle, #400, 10454 - 82 Avenue, Edmonton, Alberta T6E 2A1.

Fourth Canadian Cleft Palate Conference, University of Western Ontario, London, June 16-17, 1978. Contact: Dr. R. Latham, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Association of Canadian Faculties of Dentistry/ L'Association des Facultés Dentaires du Canada, 10th Biennial Conference on Canadian Dental Research and Education, University of Western Ontario, London, June 19-21, 1978. The research sessions will consist of symposia on ''The Tongue'' and ''Denture and Pulp'', followed by ten 15-minute research papers presented by speakers from the dental schools. The education sessions will examine ''Clinical Evaluation Systems in Canada'' and ''Dental Aptitude Test Programs''. Accommodation for registrants is available at Delaware Hall, the same facility as the Conference. Contact: ACFD/AFDC Registration and Accommodation, Room 1003, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Atlantic Provinces Dental Convention, Charlottetown, Prince Edward Island, July 2-5, 1978. Contact: Dr. David O'Connell, 13 Green Leaf Drive, Sherwood, Prince Edward Island.

Pacific Dental Federation Convention, Vancouver, July 23-26, 1978. Contact: Dr. Ken Neuman, President, Pacific Dental Federation, 1125 West 8th Avenue, Vancouver, British Columbia V6H 3N4.

Canadian Academy of Oral Radiology, 1978 Annual Meeting, Winnipeg, Manitoba, September 10, 1978. Contact: Dr. C. G. Baker, Head, Section of Radiology, Faculty of Dentistry, University of Manitoba, Winnipeg; or, Dr. C. E. Hawrish, 5064 Dentistry Pharmacy Centre, University of Alberta, Edmonton.

Pacific Coast Society of Orthodontists, 1978 Convention, Hyatt Regency Hotel, Vancouver, British Columbia, October 1-5, 1978. Contact: Dr. J. G. Ryan, #1330-925 W. Georgia St., Vancouver, British Columbia V6C 1R5.

International Meetings

Thomas P. Hinman Dental Meeting, sponsored by the Fifth District Dental Society of Georgia, Marriott and Hilton Hotels, Atlanta, Georgia, March 18-22, 1978. Contact: Dr. Ronald E. Goldstein, General Chairman, Hinman Dental Meeting, 615 Peachtree Street, N.E., Suite 915, Atlanta, Georgia 30308. Telephone: (404) 874-9855.

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With or Without Codeine

Acetaminophen

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CONTRAINDICATIONS

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PRECAUTIONS

It has been reported that acetaminophen potentiates the action of warfarin-type anticoagulants if administered several times daily over a two-week period. This should be borne in mind if the two drugs are administered concurrently. Renal damage has not been reported following the use of acetaminophen in therapeutic doses, but the chemical relationship of this drug to phenacetin cautions against its use in large amounts over protracted periods of time.

Although tolerance and addiction to codeine are rare, ⊘ Atasol-15 and ⊘ Atasol-30 should be prescribed cautiously to addiction-prone individuals. The drug should be administered with caution since the depressant effects of codeine may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS

These are usually mild and rare. G.I. upset, usually rarer than after salicylate administration, and skin reactions are known, and anemia has been reported after chronic ingestion. Usually after larger doses, codeine may cause g.i. symptoms of nausea, vomiting and constipation.

DOSAGE AND ADMINISTRATION

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325 mg acetaminophen
Adults: 1-3 tablets daily
Children: 10-14 years, one-half tablet, 3 times daily

ATASOL FORTE TABLETS
500 mg acetaminophen
Adults: 1-2 tablets as directed by a physician, up to a maximum of 5 tablets daily

ATASOL LIQUID
108 mg acetaminophen/5 ml
Children: 5-9 years, usual dose, 1 teaspoon 3 times daily or as directed by a physician to a maximum of 2 teaspoonsful 4 times daily
2-4 years, usual dose, one-half teaspoon 3 times daily or as directed by a physician up to a maximum of 1 teaspoon 4 times daily

ATASOL DROPS
54 mg acetaminophen/0.6 ml
Children: 2-4 years, usual dose 0.6 ml 3 times daily or as directed by a physician up to a maximum of 1.2 ml 4 times daily
1-2 years, as directed by a physician up to a maximum of 0.6 ml 4 times daily
under 1 year, as directed by a physician up to a maximum of 0.3 ml 4 times daily

⊘ ATASOL-8
325 mg acetaminophen
8 mg codeine phosphate
30 mg caffeine citrate
Adults: usual dose, 1 tablet 3 times daily or as directed by a physician up to a maximum of 2 tablets 4 times daily
Children: 10-14 years, usual dose, one-half tablet 3 times daily or as directed by a physician up to a maximum of 1 tablet 4 times daily

⊘ ATASOL-15
325 mg acetaminophen
15 mg codeine phosphate
30 mg caffeine citrate
Adults: 2 to 4 tablets daily or as directed by a physician

⊘ ATASOL-30
325 mg acetaminophen
30 mg codeine phosphate
30 mg caffeine citrate
Adults: 2 to 4 tablets daily or as directed by a physician

Full information available on request

HORNER
Montréal, Canada

British Society of Periodontology, International Conference on "The treatment of advanced periodontal disease", Europa Hotel, London, England, April 3-4, 1978. Contact: J. S. Zamet, President, British Society of Periodontology, University College Hospital, Dental School, Mortimer Market, London, W.C.I.

American Association of Endodontists, 35th Annual Session, MGM Grand Hotel, Las Vegas, Nevada, April 12-16, 1978. Contact: American Association of Endodontists, P.O. Box 11728, Northside Station, Atlanta, Georgia 30355.

British Dental Association, 1978 Annual Conference, Birmingham, England, April 14-17, 1978. Contact: British Dental Association, 64 Wimpole Street, London, W1M 8Al, U.K.

California Dental Association, Scientific Session on "Quality of Life", Anaheim, California, May 5-8, 1978. Contact: Steven Badolato or Geraldine Reeve, California Dental Association, P.O. Box 91258, Los Angeles, California 90009.

Circulo Odontologico Del Sur (Southern Argentina Dental Society), Second International Congress and Third Socio-Economic Congress, Bahia Blanca, Argentina, May 25-28, 1978. International lecturers will deal with all clinical specialties. Contact: Dr. R. L. Ellis, Associate Professor, Department of Community Dentistry, University of Toronto, Faculty of Dentistry, 124 Edward St., Toronto, M5G 1G6.

Congresso da Conferçào Latino-Americana de Protesistas Dentais, Convention Hall of Anhembi Park, Sào Paulo, Brazil, July 8-14, 1978. Contax: X Congresso da Confederaçào Latino-Americana de Tecnicos Dentais, 01302 Rua da Consolacao, 2416, Sào Paulo, Brazil.

New Zealand Dental Association, 9th Biennial Conference, Christchurch, August 21-24, 1978. Contact: H. G. Knowles, Honorary Secretary NZDA Biennial Conference Committee, P.O. Box 1301, Christchurch, New Zealand.

11th International Congress of Nutrition, Rio de Janeiro, Brazil, August 22 - September 1, 1978. Contact: Dr. J. A. Campbell, Treasurer, International Union of Nutritional Sciences, 1785 Riverside Drive, Suite 2204, Ottawa, Ontario K1G 3T6.

European Meeting of Oral Pathology, Amsterdam, August 29 - September 1, 1978. An advanced course in clinical and histological oral pathology. Contact: Miss R. Mooijen, Department of Oral Pathology, Free University, De Boelelaan 1117, Amsterdam, the Netherlands.

International Association on Dentistry for the Handicapped, 4th International Congress, London, England, September 12-15, 1978. Contact: Conference Office, 4th ICDH, Dental School and Hospital, University of Birmingham, St. Chad's Queensway, Birmingham B4 6NN, England.

European Association for Maxillo-Facial Surgery, 4th Congress, Venice, Italy, September 25-30, 1978. Contact: Maxillo-Facial and Stomatology Department, "S. Bortolo" Regional Hospital, 36100 Vicenza, Italy.

Fédération Dentaire Internationale, 66th Annual World Dental Congress, Madrid, Spain, September 25-30, 1978. Contact: Lawson, McKay Tours Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9. Telephone: (416) 364-0622.

Second International Prosthodontic Congress, Las Vegas Hilton Hotel, Las Vegas, Nevada, October 19-21, 1978. Contact: American Prosthodontic Society, 919 North Michigan Avenue, Suite 2108, Chicago, Illinois 60611.

Your patients could be taking any of these medications.
If so, they should not be taking ASA.

ASA is known to interact with many different types of medications,* ATASOL may interact with only one.**

So, when your patients need an effective analgesic, prescribe non-ASA Atasol Forte. In therapeutic doses, Atasol is virtually interaction-free, and causes fewer side effects than ASA. (Atasol doesn't interfere with bleeding times.)

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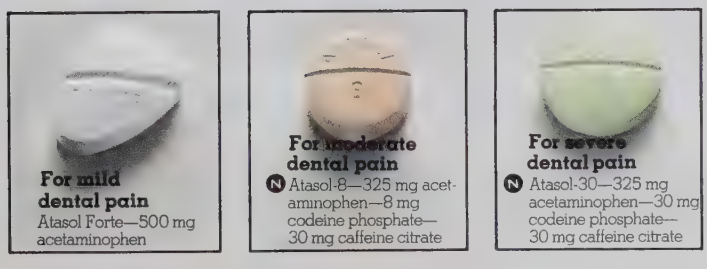

For mild dental pain
Atasol Forte—500 mg acetaminophen

For moderate dental pain
(N) Atasol-8—325 mg acetaminophen—8 mg codeine phosphate—30 mg caffeine citrate

For severe dental pain
(N) Atasol-30—325 mg acetaminophen—30 mg codeine phosphate—30 mg caffeine citrate

HORNER
Montréal, Canada

*ASA is known to interact with: non-systemic antacids, oral anticoagulants, ß-adrenergic blocking drugs, corticosteroids, oral hypoglycemic drugs. Also furosemide, indomethacin, insulin, phenylbutazone, phenytoin.

**It has been reported that acetaminophen potentiates the action of warfarin-type anticoagulants if administered several times daily over a two-week period.

This information is based upon current medical literature. Detailed references are available upon request.

PAAB
CCPP

Dental Health Month/Week 1978

Canada is a massive country with a huge diversity in its people and places. As such, it is no small task to achieve a unified national approach to almost any subject you would care to name. Just ask any federal politician.

The development of a National Dental Health campaign is subject to the "Canadian Situation" as much as anything. However, it has one great unifying factor and that is that dentists and dental auxiliaries across the country have a strong desire to help all Canadians achieve better oral health.

Preventive dentistry is certainly not a new thing, but we are realizing that it involves more than just teeth which need to be scrubbed. It involves entire human beings, their personalities, motivations and the variations in their life-styles, factors which are often affected by the area of Canada where they happen to live.

A National Dental Health campaign must accomplish two major things. It must unify our professional approach to public dental health education, while allowing a good deal of independence at the provincial level for unique approaches to unique circumstances.

Dental Health Month/Week (you'll notice a divergence already) is being run in April, 1978, by the provincial corporate members of the Canadian Dental Association, the Canadian Dental Hygienists Association and the Canadian Dental Nurses and Assistants Association. The Canadian Dental Association's role is in co-ordination and funding assistance.

In order to have a more unified approach for this April, 1978, campaign, planning was started a year in advance. A poll of provincial dental health chairmen was taken to determine their past successes and failures and to get a consensus of what they wanted for future dental health campaigns. The CDA wanted to take a more active role in co-ordinating programs.

It was decided that a completely new set of printed materials should be developed and that a more comprehensive planning kit was needed for distribution to local dental health chairmen across the country. These revised materials were then previewed at a workshop at CDA headquarters in September, 1977, which was attended by provincial chairmen and representatives of the CDHA and the CDNAA. Some modifications were suggested at that meeting and huge quantities of the approved materials will be seen across Canada in April. A national poster contest will be held with students of various age groups competing for valuable prizes. Hundreds of local projects such as shopping mall displays, hospital visits, school presentations, and other promotional activities will be carried on throughout the country. Some of these events are planned for *your* area. Why not get your whole office involved by contacting your provincial chairman through your association? You'll find it an enjoyable and rewarding experience.

Where does Dental Health Month/Week go from here? Plans for 1979 are already under way. More extensive use of the media, television in particular, will help us let the Canadian public know that we care about their health. Let's all pull together so everyone can "Keep their teeth for a lifetime".

Dr. W. D. Scramstad,
National Dental Health Month/Week Chairman
Surrey, British Columbia

April is Dental Health Month

April 9-15 is Dental Health Week

Tools of the Trade

Colgate's Special MFP Fluoride provides continuing protection against cavities between check-ups.

The fluoride treatment you give gets our patients off to a good start. But s important that they brush with an ffective fluoride toothpaste, like Colgate,* o they're fighting cavities between heck-ups too.

Our clinical tests show that the egular use of Colgate with MFP fluoride one significantly reduces the number f new cavities. Used in conjunction ith your topical fluoride application, it follows that there should be an even greater reduction of cavities.

How does Colgate's special fluoride MFP fight decay? We believe that MFP* (sodium monofluorophosphate) is effective in converting the surface layer of apatite (calcium hydroxyphosphate) into fluorapatite (a calcium fluorophosphate) thus making the tooth more resistant to decay.

Colgate's MFP is stable. Even after three years the sodium monofluorophosphate is still present and able to react with tooth enamel.

And it's reassuring to know that staining of teeth, a problem associated with some dentifrices is not a problem with Colgate's MFP.

You might remind your patients how important it is to back-up your fluoride protection...with the kind that Colgate's special MFP fluoride provides.

CANADIAN DENTAL ASSOCIATION RECOGNIZED

"Colgate has been shown to be an effective decay-preventive dentifrice that can be of significant value when used in a conscientiously applied programme of oral hygiene and regular professional care."
Canadian Dental Association.

*TM

Colgate-Palmolive Canada.

LETTERS TO THE EDITOR

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association Dentaire Canadienne. Vous êtes invités à participer à cette section du Journal.

Prevention — The Need for Attitude Change

I could not be more in agreement with Dr. Fleming's editorial on the importance of behavioural modification in preventive dentistry. (*''Prevention – The need for attitude change'', January, 1978, issue of the CDA Journal).*

May I bring to your attention ''One Man's Opinion'' as expressed by Jerry Mittleman in a recent I.A.P.M. newsletter:

''1.The best way to prevent disease is to get to the *cause*.
2. The major cause of disease is the way people choose to live . . . their habits that lower their vital life force.
3. The way to help people to health — and prevent disease — is to help them to change their habits.
4. The way to help them change their habits is *behavioural modification*.
5. Behavioural modification involves psychology.
6. Our main thrust should be psychology — no two ways about it.''

Prevention, Drs. Fleming and Mittleman concur, is an *attitude*, not a set of techniques.

How about a little more ''psych'' content in our national Journal?

Pierre Larose, DDS
Saint-Laurent, Quebec.

Short of Scientific Articles

I am very reluctant to pay the fee to join the Canadian Dental Association because I feel that the calibre of the CDA Journal is very poor. Why can our national publication not contain more scientific articles? I'm tired of seeing it full of pictures of people shaking hands and receiving presentations. If more original Canadian articles are not being written, then at least an attempt can be made to review other articles as Oral Health does.

This may seem idealistic and naive, but I feel that our profession should endeavour to maintain or improve its academic standards and clinical expertise. I really cannot see much justification for the profession trying to better itself financially or trying to find loopholes in Canadian Tax laws. Surely this is not the way to improve our public image.

I feel that the profession must be concerned about the amount of government involvement in dentistry in order to prevent the problems the medical profession is now facing. We should not have government interference in the formulating of treatment plans, nor should we be too hasty in encouraging the development of comprehensive dental insurance plans. I think that orthodontics, trauma and impacted teeth should receive aid from government dental health plans. However, insurance plans to cover the restoration of preventable oral conditions caused by dental caries and periodontal disease would not be right. This would provide no incentive to practise prevention of dental diseases.

Bruce D. Cole, DDS
Orillia, Ontario

CDA Insurance Program

I have recently completed my application for insurance under the new program drawn up by the Association. This prompted me to examine the details of the plans offered and compare them with previous arrangements, both by the CDA and outside insurance agents.

I wish to congratulate the Insurance Committee on what must have been a long and, at times, tedious task. It is quite astonishing in this day of inflation to find premiums going down rather than up and also to find the quality of the coverage has increased significantly.

I think the profession is fortunate in having individuals willing to spend time and effort on their colleagues' behalf and simply wish to offer my thanks for a job well done.

Many thanks again.

Gavin A. James, BDS, MDS, FDS
Orillia, Ontario

or teeth under attack.

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The professionally designed
tooth/gum brush
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"KEEP YOUR TEETH FOR A LIFETIME": THEME FOR 1978 DENTAL HEALTH CAMPAIGN ACROSS CANADA

All ten provincial dental associations, in co-operation with the Canadian Dental Association, the Canadian Dental Hygienists Association and the Canadian Dental Nurses and Assistants Association, will launch a National Dental Health Campaign in April, 1978. A number of provinces have chosen to concentrate their efforts on the observance of "Dental Health Week" April 9-15, while others will promote "Dental Health Month" throughout the entire month of April.

"Keep your teeth for a lifetime" is the theme for this 1978 campaign — a theme designed to establish a goal for Canadians and to show the willingness of the dental community to help them achieve this goal.

The Canadian Dental Association has co-ordinated this coast-to-coast campaign and provided assistance in the form of a comprehensive program planning kit distributed to the provinces along with 24,000 brightly colored posters proclaiming the theme of Dental Health Month/Week.

Planning for this year's campaign actually began for CDA and its provincial members more than a year ago. On September 10, 1977, a day-long workshop was held at CDA headquarters by the Council on Information Services for all provincially-appointed Dental Health Month/Week chairmen. Dr. Don Scramstad of Surrey, British Columbia, national chairman, headed up the workshop with the following provincial chairmen in attendance: Dr. J. Anderson of Surrey; Dr. J. Boulton of Calgary; Dr. E. Freidin of Saskatoon; Dr. W. Wilfred of Winnipeg; Dr. K. Babcock of Oakville, Ontario; Dr. Y. Dufresne of Trois Rivieres, Quebec; Dr. E.F. Gaum of Halifax; Dr. G. Glantz of Souris, Prince Edward Island; Dr. P. S. Manson of Fredericton and Dr. R. W. G. Gamble of St. John's. Mrs. F. Bowler of Downsview, Ontario, represented the Canadian Dental Hygienists Association and Ms. E. Wesley of Lethbridge, Alberta, attended on behalf of the Canadian Dental Nurses and Assistants Association.

The program planning kit developed for Dental Health Month/Week 1978 encompasses the input of the representatives of each province and organization. The kit includes: program planning suggestions; examples of radio spot commercials; newspaper articles; suggestions for talks to community groups; ideas for dental health projects in schools, old age and extended care facilities and shopping malls and many, many more ideas to make everyone in the community aware of the importance of dental health.

The Canadian Dental Association urges every dentist in Canada to support Dental Health Month or Week in their province. Contact your provincial association and find out how you can help.

"Keep your teeth for a lifetime"

What a difference no foot control makes.

With the Powermatic® unit, ultrasonic prophylaxis seems to go easier and faster than ever.

Dentists and hygienists who use the Powermatic unit tell us they experience something new. Scaling procedures seem to be more continuous rather than the jerky, start-stop operation with a foot control. As a result, valuable minutes are saved, with more work accomplished and less apparent fatigue.

What's the reason? Is the Powermatic more powerful than other Dentsply®-Cavitron® Units? Are the inserts different? Has technique been altered?

No. The difference is that you control the handpiece with a finger flick. You simply flick the unit on and leave it on—moving the insert over the tooth surface faster or slower, depending on calculus accumulation and patient sensitivity.

With *finger* control you and the Powermatic unit seem to work better together. Your dealer will demonstrate—call him now or write Dentsply direct.

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CDA STAFF APPOINTMENT

Marie Cosgrave

Marie Cosgrave has been appointed to the staff of the Canadian Dental Association as Public Information Services Manager, with the overall responsibilities of communicating with members of the profession and the general public, and for the dissemination of information and Dental Health Materials. Some of Miss Cosgrave's specific responsibilities include the co-ordination of National Dental Health Week, the co-ordination of projects generated by the Council on Information Services, and providing information on Canadian and American Continuing Educational Programs.

Prior to joining the staff of the CDA, Miss Cosgrave was employed by the Canadian Medical Association for five years as Classified Advertising Manager fo the CMA Journal. Her past work experience also includes the editing of various new bulletins.

Miss Cosgrave was born in Dublin, Ireland, and studied Liberal Arts at the National University of Ireland.

CDA STUDENT MEMBERSHIP REACHES AN ALL TIME HIGH

Student membership in the Canadian Dental Association continues to rise. At the end of December, 1977, student membership figures stood at an all time high — 74.4 per cent as compared to 70.7 per cent during the 1976-77 academic year.

Six of the ten Canadian dental faculties increased their membership figures over last year, in some cases quite significantly. A breakdown of membership at each dental faculty is shown in the chart.

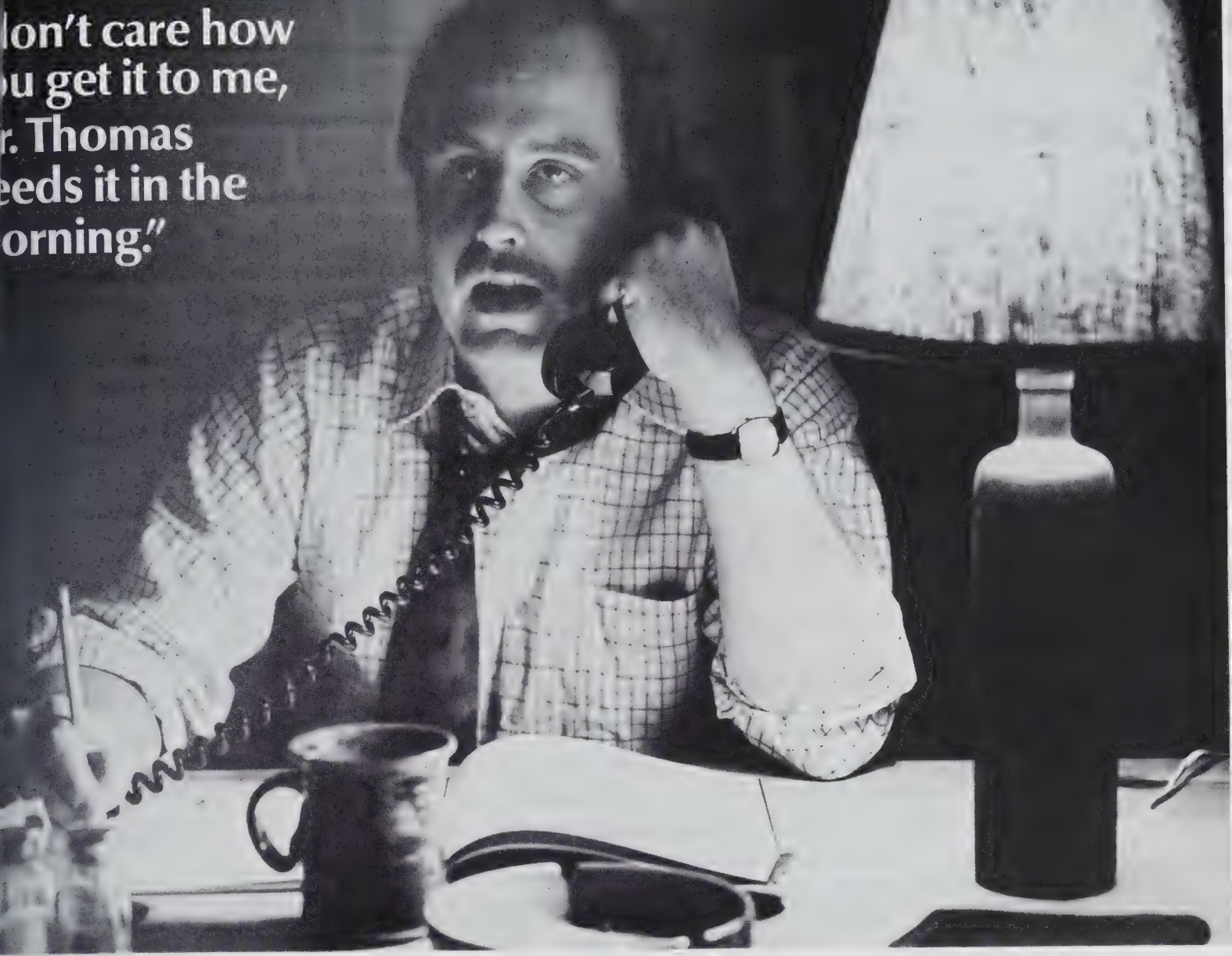
The maintenance of a high level of student membership at the majority of dental faculties is due in large part to the hard work of the CDA student representative at each faculty. Student membership across Canada is solely voluntary and the support and effort of the student representatives plays a vital role in maintaining high membership figures.

All of the 1977-78 student representatives are deserving of congratulations in promoting CDA student membership and Association activties at their respective dental schools. Representatives are as follows:

James Girard — University of British Columbia
James Anderson — University of Alberta
Craig Meyers — Univeristy of Saskatchewan
Donald Neal — University of Manitoba
David Hurst — University of Western Ontario
Jack Gerrow — University of Toronto
Richard Gilsig — McGill University
Gary Cousens — University of Montreal
Jean-Luc Dion — Laval University
Robert DeWolfe — Dalhousie University

Total student membership now stands at 74 per cent. Let's make it even higher!

School	Membership figures Student Members	Total Undergraduates	% 1977-78	Comparative 1976-77
U.B.C.	92	159	57.8%	63.6%
Alberta	118	201	58.7%	67.5%
Saskatchewan	40	84	47.6%	45.4%
Manitoba	108	123	87.7%	47.1%
U.W.O.	216	224	96.4%	100%
Toronto	496	508	97.6%	100%
McGill	133	172	77.3%	72.1%
Montreal	149	332	44.8%	32.8%
Laval	45	89	50.6%	31.5%
Dalhousie	88	104	84.6%	69.8%



When you saw him, he was all smiles.

hen George Johnson left
ur office this afternoon, he
as smiling, and that's the way
should be. But life isn't always
happy smile and a good
le. Things can, and do go
rong. You might have a run
n a material, or maybe a
oduct wasn't ordered on
me. These things happen, and
ey happen to all of us. It's
hat you do about them
at counts.

George's case, and he is a
pical Ash Temple represent-
ive, he finished his calls,
ent home, had dinner, then
sat down with the phone to solve your problems. A phone call to his manager and George found out there was no delivery to Dr. Thomas's town until next Thursday, three days late. But yes, there is a delivery going to another city sixty miles away. "Fine" said George, "put Dr. Thomas's order on that shipment and I'll drive over and meet the truck in the morning". Presto the problem is solved.

No, problems like that don't happen every day—but when they do, isn't it nice someone is staying up to help solve them.

At Ash Temple, we've been solving problems for Canadian dentists for over a hundred years.

Give George a chance—he wants to make life easier for you.

Ash Temple
LIMITED

CFDE INCOME OVER $235,000 IN 1977

Last year, for the first time since it was started in 1962, the Canadian Fund for Dental Education's income exceeded $200,000, according to a recent announcement by CFDE Chairman Dr. John. W. Neilson.

Dr. Neilson stated: "Again in 1977 personal gifts from dentists and their auxiliaries of over $63,000 were the Fund's largest single source of income and nine per cent more than in the previous year. Dental organizations did their part with a fine increase of over 15 per cent. Also included in the 1977 income was a $3,000 contribution to an existing dental study club's endowment fund.

"This continuing leadership by members of the profession undoubtedly helped to prompt substantial increases in gifts from foundations and business and industry.

"We of the Fund are proud of this record amount of income and deeply grateful to our many contributors whose generous help made it possible. It enabled CFDE to provide more badly needed assistance for dental education and research in 1977 than in any previous year," said Dr. Neilson.

TRACK RECORD

Still getting the old "Slow Delivery" and "Back Ordered" run around from your dental supplier?

These days the smart money is on snappy service suppliers like Denco, with an impressive track record for fast turnaround of needed products. Thanks to the increased efficiency of Denco's communication, stock control and delivery systems, your order can be placed and on its way the same day . . . that goes for the specials too.

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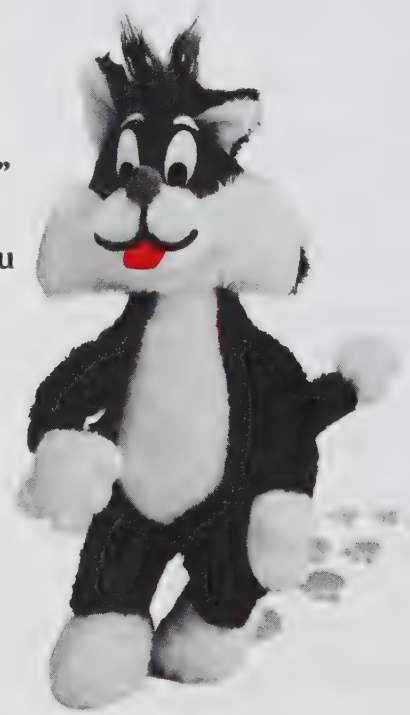

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CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on January 31, 1978:

Common Stock Fund	$28.001
Fixed Income Fund	$20.482
Guaranteed Fund	$14.383

Total assets (market value) of the plan were $25,951,121.52.

The previous month's figures, as of December 31, 1977, stood as follows:

Common Stock Fund	$29.427
Fixed Income Fund	$20.506
Guaranteed Fund	$14.315

Total assets (market value) of the plan were $26,556,117.34.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

New Brunswick Dental Society

Dr. Gerald G. Orser of Fredericton was elected president of the New Brunswick Dental Society during the Society's 1977 annual meeting held in Bathurst.

A dental graduate of Dalhousie University, Dr. Orser has headed a number of professional committees and was the New Brunswick Dental Society's representative on the Board of the Canadian Dental Association.

FLUORIDATION — COST VERSUS SAVINGS

The cost of an adjusted fluoridation installation will vary with the volume of water to be treated:

Equipment costs for a small system should be in the neighbourhood of $4,500 to $6,000, and for a somewhat larger system might be $10,000 or more.

Installation costs should be relatively minimal in most cases but, in difficult situations, could perhaps double the cost. Although most existing plants could accommodate the fluoridation equipment, in some cases small extensions would be required and these costs would have to be taken into consideration. The installation costs might be charged off in the first year or, if preferred, amortized over a number of years.

Municipal officials should be able to obtain assistance in cost estimating from the provincial authorities responsible for the environment. However in special cases, in order to ensure that a representative cost figure is obtained, it is best to contact one or more equipment manufacturer or consulting engineer.

The cost of the fluoride to be added to the water, in order to bring the fluoride concentration up to the optimal level recommended for the locality, depends upon such factors as the fluoride compound used, freight charges and the number of people served. To give one example: In Ontario the 1976 reported annual costs per capita of the fluoride ranged from 4.4 to 83.3 cents. The average was 17.7 cents but the median cost was only 11.3 cents.

Operating costs were added for some systems. These brought the average to 45 cents and the median to 17.3 cents.

When compared to savings to the community, within a few years, in teeth, time and dollars, these costs are extremely small. Apart from the obvious benefits of having better teeth and preventing discomfort, there are savings of time and money to the person who thus avoids being absent from school, home or work.

One of the most impressive savings is in dollars. Tests in many parts of the continent show that, when adjusted fluoridation has been in effect for some time, the cost-per-patient of dental health care programs for children is reduced by about 50 per cent. Dentists then have more time to provide more care for more people.

Fluoridation Officer
Canadian Dental Association

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RÉGIME ENREGISTRÉ D'ÉPARGNE-RETRAITE DE L'ASSOCIATION DENTAIRE CANADIENNE

Le REER a été créé par l'Association en décembre 1957, peu de temps après l'adoption d'une loi permettant l'ajournement d'impôts sur le revenu pour les cotisations admissibles versées à un régime enregistré d'épargne-retraite. Le nombre de régimes mis en opération au cours des années qui suivirent rendait le choix difficile pour toute personne désireuse de profiter de cet ajournement d'impôts.

Certains régimes comprennent des frais d'adhésion, d'autres des frais de résiliation. Quelquefois, le participant doit effectuer des versements périodiques. Très souvent, ces régimes imposent des indemnités sévères si les paiements ne sont pas effectués. Également souvent, les régimes n'ont pas de valeur de rachat avant la fin de la troisième année.

L'ADC a conçu son régime dans le but d'éviter la majorité de ces restrictions et d'offrir aux membres de la profession un véhicule incorporant les éléments suivnats:

1. Flexibilité
2. Choix de fonds
3. Elimination des frais d'adhésion ou de résiliation
4. Frais de gestion modiques

1. ''Flexibilité'' indique qu'un participant peut verser ses cotisations au moment qui lui convient, à concurrence du maximum autorisé. Il peut, sans indemnité, et pendant quelques années, ne verser aucune cotisation. Il peut également, sans encourir de frais supplémentaires, transférer son capital d'un fonds à un autre.

Les participants ont également le droit de résilier leur participation et de convertir leur capital en espèces. Aucune indemnité pour ce genre de transaction. Toutefois, l'argent obtenu à la résiliation du régime s'ajoute aux revenus imposables pour l'année de la transaction.

2. Le régime de l'ADC offre actuellement un choix de cinq fonds:

a) Fonds d'actions ordinaires

b) Fonds à revenu fixe (obligations et hypothèques)

c) Fonds de garantie

d) Fonds de placement équilibré

e) Certificats de placement garantis

Le participant peut placer sont argent en fonds uniques ou il peut diviser ses investissements en plusieurs fonds. Suivant les fluctuations du marché, il peut changer sa formule d'investissement.

Le ''fonds équilibré'' a été spécifiquement conçu au bénéfice de ceux qui préfèrent ne pas toujours avoir à surveiller les tendances du marché. Un administrateur est chargé de la composition du portefeuille, qui comprend des actions, des obligations et des hypothèques.

3. Cent pour cent des cotisations sont investis. Certains régimes font l'objet de frais d'adhésion en vertu desquels un certain pourcentage de la cotisation constitue une commission. Ces frais peuvent s'élever jusqu'à neuf pour cent. D'autres régimes incorporent des frais de résiliation.

4. Pour le régime de l'ADC, les frais de gestion ne s'élèvent qu'à ½ pour cent par an. Cette somme couvre les services d'investissement, les frais de fiducie et de gestion. Pour de nombreux régimes, les frais s'élèvent à ¾ d'un pour cent ou même à un pour cent par an de la valeur en cours des fonds.

L'Association surveille de près le rendement du régime. Au cours des années, le rendement a généralement été supérieur à la moyenne, si l'on compare le régime de l'ADC à des régimes semblables. Suivant les fluctuations du marché, l'introduction de nouveaux fonds ou le retrait de certains autres peuvent constituer des opérations avantageuses. L'ADC continuera à étudier les options du régime afin de pouvoir assurer que ce dernier serve toujours au mieux les besoins des participants.

Nous invitons tous les membres de l'Association à se familiariser avec le régime de l'ADC sans que ce soit toutefois notre intention d'exercer une pression quelconque sur eux.

Notre régime constitue simplement une option viable à la confusion créée par les nombreux régimes offerts et les avantages énumérés dans cet article sont certainement dignes d'attention.

Conseil intérimaire sur l'Assurance de l'ADC.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 janvier, 1978:

Fonds d'actions ordinaires	$28.001
Fonds à revenue fixe	$20.482
Fonds avec garantie	$14.383

L'avoir total (valeur marchande) de régime se montait à $25,951,121.52.

Au 31 décembre, 1977, les chiffres au mois précédent étaient les suivantes:

Fonds d'actions ordinaires	$29.427
Fonds à revenue fixe	$20.506
Fonds avec garantie	$14.315

L'avoir total (valeur marchande) du régime se montait $26,556,117,34.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

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Kindergarten children sit in a large circle to conduct their brush-in program under the guidance of a dental hygienist and a dental assistant. The necessary supplies are arranged in front of each child on a paper towel.

KINDERGARTEN "BRUSH-IN" PROGRAM A HIT IN PRINCE GEORGE, BRITISH COLUMBIA

During the 1976-77 school year each kindergarten class in Prince George, British Columbia, was visited three times by a team of dental care professionals; a dental hygienist and a certified dental assistant. Operating out of the Northern Interior Health Unit, Mary Ann Hayes and Diane Moore called on kindergarten and primary classes implementing their "brush-in" program.

Weeks before the arrival of the dental health team a fluoride use consent form was sent home to all of the parents. The program was briefly described and the parents were asked to check whether or not their child had permission to use topical fluoride applications.

On "brush-in" day Mary Ann and Diane came into the class and gathered the children around to tell them a story of Dudley the Dragon. In the story Dudley learns a lesson in dental care and, of course, the children do too. An oversized toothbrush and a plastic model mouth were used to demonstrate brushing technique while the materials for the actual brushing were made ready. When the children sat in a large circle the "brush-in" was ready to begin.

Each child was given a paper bib and on the floor in front of each child was a paper towel, a paper cup with the special fluoride paste, a spit cup and a kit with a toothbrush and a tube of toothpaste. The small tube of commercial toothpaste was set aside to be taken home later. The dental health team took special care to keep all of the children together step by step. First, they all opened their boxes and removed the toothbrush and unwrapped the brush. Then, each child dipped his brush into the paste and with a circular motion brushed his "smile" teeth. Those children who did not get permission to use fluoride used a plain toothpaste.

Diane Moore explains that the young children seem to have greatest success with the circular motion. The reason she has them start with the smile teeth rather than going from one side to the other is that they can all locate the smile teeth.

The class proceeded systematically dipping, brushing and using the spit cups according to directions. After the smile teeth were done the students tucked the brush back in their cheeks like squirrels and did their side teeth. The brushes were turned up to "make a train sound" on the chewing surfaces of their upper teeth and then they were turned down to do the tops of their lower teeth.

At the end of a half hour visit Diane and Mary Anne leave to visit another class. Before going, they direct the children to clean up the bibs and cups, etc. and give each child a coloring picture of Dudley the Dragon. The kit containing the toothbrush and toothpaste was the child's to take home.

A few months after "brush-in" day the dental health team returned, this time with a portable dentist's chair. The children were individually examined and a record kept of the condition of their teeth. A card was sent home to inform the parents if further attention was required and if a dentist's care was needed urgently.

A third visit from the dental health unit similar to the initial "brush-in" was

Nathan brushes conscientiously according to instructions.

Each child's toothbrush is stored individually on a handy wall rack.

made in the spring. The basics of dental care were reviewed with the children and the topical fluoride was reapplied.

The dental health team kept track of the number of five and six year olds whose teeth were in such condition that extractions were called for. The result was a shockingly high 19 per cent. Since Prince George is a city with a fluoridated water supply and an adequate number of dentists, this excessive extraction rate was alarming. The dental health team has set a goal; they hope to reduce the extraction rate to 9 per cent in five years' time. To accomplish this they have initiated a daily "brush-in" program supervised by the regular classroom teacher. This daily program is designed to supplement the existing "brush-in" program.

For the 1977-78 school year the dental care program has been greatly expanded. The dental health team plans four visits this year including a dental awards day. The children are being encouraged to visit the dentist and the local dentists are helping keep track of those who do come. Diane and Mary Anne spent the summer assembling resource kits containing learning materials for the classroom teacher to borrow. In the kits are posters, song sheets, mouth mirrors, a tape cassette with a brushing song, a model mouth and large brush and a resource book with lesson plans and worksheets. The most important change for this school year is the daily brushing program.

For the teachers interested in participating in the daily brushing, a workshop was held early in the year during which the purposes and procedures were outlined and the materials introduced and distributed. Each teacher was given sufficient toothbrushes and toothpaste, a brushing record chart and dental health posters. The teachers were also shown ways of storing toothbrushes, i.e. using an inverted egg carton to hold twelve brushes.

For years snack time has been a routine part of the kindergarten curriculum. Now snack time will provide the bonus of giving every child the opportunity to brush his teeth after eating. This means that regardless of the dental care at home, the child gets at least one chance per day to clean his teeth. In addition, school is shown to be an acceptable place to practice dental hygiene and the children should learn to feel comfortable brushing their teeth when they are away from home.

A few of the kindergarten classes have actually been having the children brush after snack for the last few years. The teachers who have experience with daily brushing programs have found that the routine did not interfere with their class schedule and that it was fairly simple to administer. The main difficulty in the past has been getting the supplies — a class set of toothbrushes and ample toothpaste. Now, with the Health Department implementing the program, it should be easier than ever for the kindergarten teachers in Prince George to help children learn good daily dental care habits.

This article and the accompanying photographs were submitted to the Journal by David Greenberg, a Prince George kindergarten teacher.

REVIEW OF APLASTIC ANAEMIA AND REPORT OF A RARE CASE (FANCONI TYPE)

I.D.F. Schofield, DDS, FRCD(C)
W. G. Abbott, DDS
London, Ont.

The clinical manifestations of aplastic anaemia are discussed, including treatment. A case of this disease is reported, emphasizing the dental implications and precautions to be taken when rendering dental therapy.

Aplastic anaemia is a haematological disorder characterized by pancytopenia due to fatty degeneration or replacement of bone marrow. Simply stated, there is impaired proliferative capacity of bone marrow cells.

Many cases are idiopathic, but Sodeman[1] classified the aplastic anaemias by etiology, as any etiological agent that injures stem cells to the extent that they lose their capacity for normal cellular renewal can cause aplastic anaemia. These include chemical toxins (e.g. Chloramphenicol), radiation, infection (e.g. viral hepatitis) and immunologic, metabolic and neoplastic diseases. There is also a rare congenital form of aplastic anaemia, namely the constitutional form or Fanconi's anaemia.[2]

There is little written about Fanconi's anaemia, most major haematology textbooks only mentioning the condition briefly, some not at all. In 1927, Fanconi[2] described three brothers exhibiting hypoplastic bone marrow and pancytopenia who also demonstrated multiple congenital abnormalities. Since that time, approximately 200 cases have been reported.[3-6]

Fanconi's anaemia is essentially a congenital bone marrow hypoplasia that can occur with or without visceral or bony malformations and with or without definite family history. It manifests itself in the first decade of life and is presumed to be of recessive inheritance.[5] It is somewhat more common in males than in females (2:1).

The haematological findings include aplasia or hypoplasia of bone marrow, fibrosis of marrow, anaemia, leukopenia and thrombocytopenia.

The associated visceral and bony abnormalities that can be observed are brown skin pigmentations, hypoplasia of the kidney and spleen, nephrosis, absent or hypoplastic thumb or radius, microcephaly, mental retardation, sexual retardation due to hypogonadism and hypogenitalism, and growth failure with small stature due to an effect on the long bones.[8,9] There may be glycosuria and aminoaciduria.[10] Before the syndrome is fully established, bone marrow may be normocellular or even hypercellular.[5]

Since there is a lack of consistent familial or genetic background, the etiology of Fanconi's anaemia may be from induced changes in foetal development, however, no drug or environmental condition has been found to be responsible.[3] It is possible that the inherited or induced chromosomal abnormalities may result in the emergence of cell lines with low fertility.[11] There is an increase in chromosome breakage and a high incidence of leukaemia in patients with Fanconi's anaemia.[12]

Clinical manifestations

The clinical picture of aplastic anaemia is often one of a progressive anaemia with haemorrhage into the skin or from mucous membranes (tromobocytopenia) and fever and necrotic ulcers in the mouth and throat (granulocytopenia). The blood survey often shows a haemoglobin of less than 6 g per 100 ml, red cell count of 2,000,000/cmm, low reticulocyte count, leukopenia with 1,000-2,000/cmm and a low platelet count of less than 10,000/cmm.

In its idiopathic or primary form, the disease is usually fatal within three to nine months, although recovery has been known to occur.

The clinical features of the secondary form are similar to the above, however, a chronic hypoplastic process with anaemia of 6-9 g haemoglobin per 100 ml and corresponding depression of platelets and granulocytes may continue for years.

Treatment

In most cases the cause is unknown or irreversible, and treatment consists of repeated whole blood transfusions, ample amounts of haemopoietic factors (cobalamin, folic

Fig 1 This view of the patient's forehead demonstrates numerous areas of "cafe-au-lait" pigmentations. These were also present on the patient's back.

Fig 2 The patient exhibited generalized hyperpigmentation of the neck with areas of reduced pigment (as indicated by arrows) resulting in speckled vitiligo.

acid, iron, vitamin C), platelet transfusions for bleeding problems and steroid therapy. Aplastic bone marrow appears to respond well to the stimulatory effect of androgens.[1] Antibiotic therapy may be frequent due to a susceptibility to infection. There are some instances where marrow transplantation may prove a benefit.

Report of a case

This case illustrates an example of Fanconi's anaemia that has stabilized somewhat, rather than becoming progressively worse. Most patients die before the age of 20, but this patient was 24 when first seen by us. It may be possible that this case exhibits an incomplete manifestation of the genetic disorder.

History

The patient was referred to the Department of Dentistry at University Hospital in London, Ontario for treatment, and presented as a small, frail, 24 year old female weighing only 65 pounds. A history of bruising more easily than normal was reported but no unusual bleeding tendencies were noted. There was pigmentation around the neck and trunk with speckled vitiligo (Figs 1 and 2). Cafe-au-lait spots were present on her back, arms and forehead. Secondary sex characteristics were normal but the patient has had recurrent gynecological problems. She revealed a history of doing very poorly in school and was considered to have a lower than normal level of intelligence. There was evidence of microcephaly. The bone marrow was severely hypoplastic and the serum immunoglobulins reduced. Over the years her haemoglobin had ranged from 6.6 to 12.0 g per 100 ml. The reticulocyte counts were almost normal but her platelet count ranged from 30,000 to 70,000 per cmm. The white blood cell count ranged from 2,600 to 5,000 per cmm. She has been on prednisone therapy to stimulate bone marrow but this is periodically discontinued due to subcapsular cataracts of the femur related to the prednisone.

Fig 3 The arrows demonstrate severe gingival recession with extreme marginal gingivitis. Notice also the rampant caries. Virtually all the teeth were mobile.

Her family history is relevant. Neither the father nor the mother demonstrated symptoms of anaemia. She is the youngest of eight children. Two older brothers have died of gross pyogenic infections. The first brother demonstrated bilateral missing thumbs, hypoplastic kidneys and aplastic anaemia. He died of overwhelming pneumonia. The second brother was very small; he was on steroid therapy for aplastic anaemia and demonstrated pigmented lesions. He died of meningitis. As can be seen, the agranulocytosis and immunologic deficiency increases the susceptibility to infection.

Dental Implications

This patient exhibited gross dental caries and severe periodontal disease with mobility of teeth and extreme gingival inflammation and recession (Fig 3). There was chronic dental-alveolar infection, and the threat of secondary spread of sepsis was feared due to the patient's low resistance. This repeated stress to the patient's system needed elimination, and it was deemed that ideal treatment would be full mouth extractions with follow-up prosthetic care.

In many cases of terminal illness, retention of dental units as long as possible often is preferred, but for this patient with a hopeless periodontal prognosis, systemic steroid therapy and a low resistance to infection, it was felt that extractions were necessary. The elimination of sepsis may in fact improve her long-term prognosis.

The most serious complications arising from treatment are haemorrhage and infection. The patient should be admitted to the hospital prior to surgery for haematological management. If the patient has been taking steroids on a long term basis, consideration must be given to increasing the dosage pre- and postoperatively. Prophylactic antibiotic coverage is given to prevent infection. Postoperative haemorrhage is the greatest concern, and in this case the extractions were done in two phases, thus allowing an assessment of clotting efficiency after phase one. Blood must be typed and matched pre-operatively, should a transfusion become necessary. Marrow transplant was saved if possible as a later procedure.

In this case, bleeding continued for three hours postoperatively, despite meticulous suturing and constant pressure packs. The patient was managed without the need of whole blood or packed cells and haemorrhage was ultimately controlled.

After a period of adequate healing, the patient was referred to her own dentist for prosthetic care. It was the patient's own choice not to have immediate dentures made.

Dr. Schofield is associate professor of oral surgery at the Faculty of Dentistry, University of Western Ontario, London, Ont.

Dr. Abbott is a dental intern at University Hospital, London, Ont.

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Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

Article Titles Make article titles descriptive but as concise as possible. Long titles discourage reading, present typographical and layout problems and create difficulties in library indexing.

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For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. J Canad Dent Ass 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

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REPORT OF A HEARING SURVEY OF DENTISTS

Margaret E. Roberts
Richmond, B.C.

Dentists attending the 1976 Annual Convention of the British Columbia College of Dental Surgeons had their hearing tested to determine the extent of noise-induced hearing loss in these professionals. The results suggest that noise in dental offices may be a health hazard to individuals working in such an environment. Studies of a quantitative nature are recommended.

The effect of noise on man, particularly on his hearing, has been widely discussed in the past 10 years. Hearing conservation programs are now widespread as industry becomes more aware of the necessity to protect its workers against a handicapping hearing loss. Although numerous studies have been conducted in industry, there has been less concern in professional areas where noise may also be a factor affecting the health of individuals. Dentistry is one such area. In the early '60's, when high-speed dental equipment was introduced, several reports[1-8] discussed the possibility that the noise levels generated could cause a hearing loss. Most reports concluded, however, that the exposure time to these high noise levels was not sufficient to make it a significant hazard. Little attention has been given to the subject since that time.

In order to assess the hearing status of dental professionals, a group of dentists and dental assistants had their hearing evaluated during a survey at the 1976 Annual Convention of the British Columbia College of Dental Surgeons. These tests were part of a general "health evaluation program" at the Conference and were intended to give immediate information to those tested on the condition of their hearing. This report summarizes the findings of that survey.

Method

Participants in the survey were first questioned about their exposure to noise and additional matters suspected of being related to hearing loss. After completing the questionnaire (Table 1), subjects underwent pure tone testing in a soundproof booth. The frequencies 500 Hz through 8 kHz were tested using a modified screening technique. Each person was screened at 15 dB level across the frequency range. If there was no response at 15 dB, a threshold was found using an ascending/descending method. Each ear was tested independently and if the loss was asymmetrical, the results for each ear were assessed separately.

Results

Audiograms were considered Normal, Early Warning or Abnormal, according to the criteria in Figure 1. There were 21 (27 per cent) dentists with normal results, 45 (59 per cent) with early warning "notches" and 11 (14 per cent) with abnormal audiograms (Table 2). The abnormal audiograms were further divided into symmetrical or asymmetrical, and conductive or sensorineural losses (Table 3).

A conductive hearing loss is defined as a loss due to an interference in the mechanical transmission of sound energy from the external ear into the inner ear. A sensorineural hearing loss ("nerve deafness") is a loss due to any impairment in the functioning of a cochlea or the nerve pathway to the brain.

Among the 11 abnormal subjects, one showed a 30-40 dB flat configuration with abnormal impedance results, indicating the loss was most likely conductive. The other 10 abnormal cases showed normal impedance measurements, indicating a sensorineural loss. There were four symmetrical and six asymmetrical sensorineural losses. On five of the six asymmetrical audiograms, losses were greater in the left ear.

The dentists' audiometric results are translated into a series of 19 dependent variables and the answers to the questionnaire into a series of 10 independent variables (Table 4). Correlation coefficients were calculated between the dependent and independent variables. A series of multiple linear regressions were run using each of the 19 dependent variables against the series of 10 independent variables. The analysis is summarized under the following headings:

A. Loss-exposure relationship: negative indicators
B. Loss-exposure relationship: positive indicators
C. Ear problems
D. Smoking
E. Other variables.

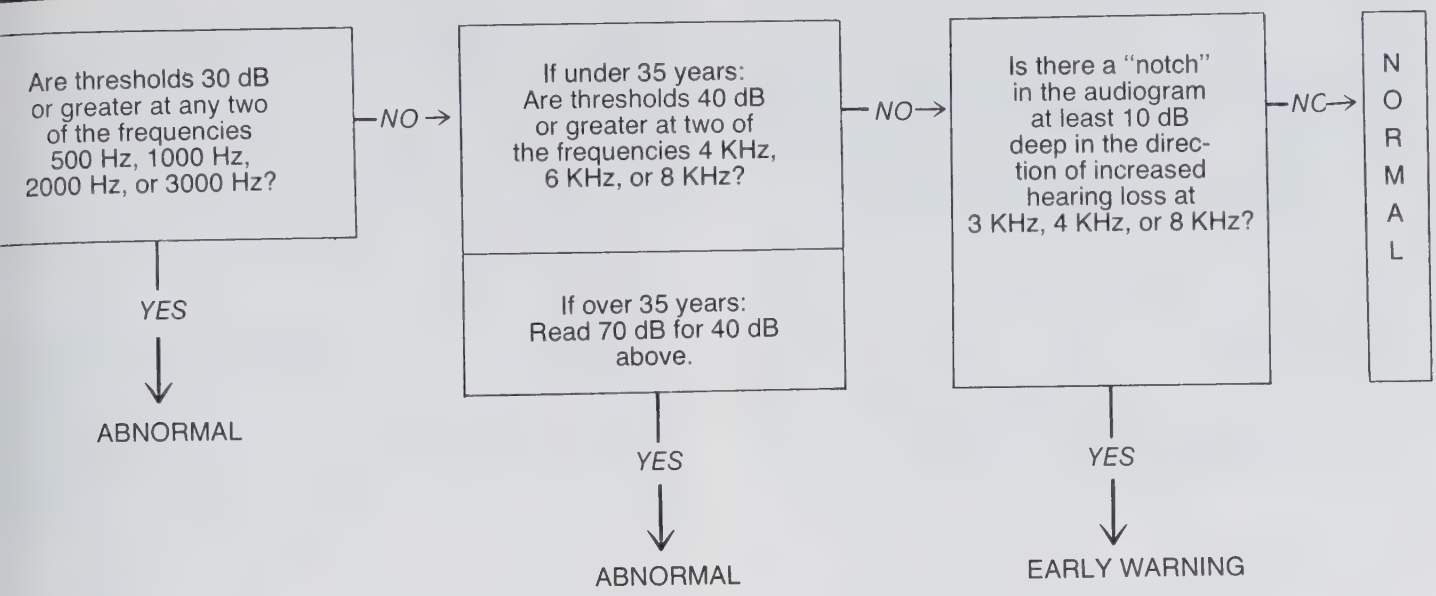

Fig 1 Flow chart for audiogram categorization

Hearing loss questionnaire — Table 1

Name _____

Age _____ years. Number of years in practice _____

1. How many patient chairs (rooms) do you use in your practice?
2. If more than one, for how many years? _____
3. Do you use a high speed drill? _____
   Number of years _____
4. Do you use a high speed cleaner? _____
   Number of years _____
5. What other high level noise equipment have you used in your practice? _____
6. Have you worked in any noisy industries (i.e., during high school or college)? Please specify industry and duration. _____
7. Have you ever worn ear protection? _____
8. What recreational noise exposure have you had? (i.e., hunting, snow-mobiling, etc.) _____
9. Have you had any ear problems? _____
10. Do you smoke? _____ Amount per day _____

Any Comments _____

Summary of audiometric results of 77 dentists — Table 2

Audiogram type	Number	Mean age
Normal	21 (27%)	36.9 yrs.
Early warning	45 (59%)	35.8 yrs.
Abnormal	11 (14%)	46.7 yrs.
Total	77	37.7 yrs.

Summary of abnormal results — Table 3

	Symmetrical	Asymmetrical		Total
		R > L	L > R	
Conductive			1	1
Sensorineural	4	1	5	10

Regression variables used in statistical analysis — Table 4

1. Normal vs early warning
2. Normal vs abnormal
3. Early warning vs abnormal
4. Hearing loss, worst ear, 1 kHz
5. Hearing loss, worst ear, 2 kHz
6. Hearing loss, worst ear, 3 kHz
7. Hearing loss, worst ear, 4 kHz
8. Hearing loss, worst ear, 6 kHz
9. Hearing loss, worst ear, 8 kHz
10. Hearing loss, best ear, 1 kHz
11. Hearing loss, best ear, 2 kHz
12. Hearing loss, best ear, 3 kHz
13. Hearing loss, best ear, 4 kHz
14. Hearing loss, best ear, 6 kHz
15. Hearing loss, best ear, 8 kHz
16. Hearing loss, worst ear, average 1,2,3, kHz
17. Hearing loss, worst ear, average 4,6,8, kHz
18. Hearing loss, both ears, average 1,2,3, kHz
19. Hearing loss, both ears, average 4,6,8, kHz

1. Age (A)
2. Years in practice (YIP)
3. Chair-years (CY)
4. Chair-machine years (CMY)
5. Other noisy equipment (ONE)
6. Other noisy industry (ONI)
7. Ear protection (EPN)
8. Recreational noise (RN)
9. Ear problems (EPS)
10. Smoking (S)

A. Loss-exposure relationship: negative indicators

In the questionnaire, a comparison of the "normal" and "early warning" audiograms showed no significant difference in the amount of exposure. When the independent variables "Age", "Years in Practice" and "Chair Years" were compared with the dependent variables "Abnormal" vs "Normal" and "Abnormal" vs "Early Warning", all were significantly correlated. The greater the exposure as measured by these three variables, the greater the likelihood that the audiogram would be classified as "Abnormal". These three independent variables, however, were virtually equivalent: after one of the three had been entered in the multiple regression, neither of the remaining two could account for any additional variations. This result could reflect the known fact that hearing loss increases with age.

B. Loss exposure relationship: positive indicators

Stronger exposure relationships were found in the "worst ear" regressions than in the "best ear" regressions. A possible interpretation of this difference is that the ear most directly exposed to the drill noise becomes the "worst ear". Since "worst ear" losses had greater correlations with the exposure variable than "best ear" losses, the dental equipment may have produced this effect.

A second positive indication of a hearing loss/noise exposure relationship was found in the multiple regression analysis. In the "worst ear" series, at each of 3000 Hz, 4000 Hz and 8000 Hz, after one of the variables "Age", "Years in Practice" and "Chair Years" had been entered, the "Chair-Machine Years" variable was entered into the regression: for dentists of similar age, those with the higher "Chair-Machine Years" tended to have a greater hearing loss.

The exposure variable "Other Noisy Equipment" became significant in the multiple analysis at "worst ear" at 8 kHz and at "best ear" at 8 kHz. This means that for dentists of similar "Age" and "Chair-Machine Years", those with a "yes" response to the "Other Noisy Equipment" variable tended to have the greater hearing loss at 8000 Hz.

C. Ear Problems

A positive response to the question "History of past ear problems" was correlated with hearing loss for "worst ear" at 1000 Hz and 8000 Hz and for "best ear" at 1000 Hz and at 8000 Hz.

D. Smoking

Correlation coefficients were significant between positive responses to the "smoking" question and hearing loss for "worst ear" at 1000 Hz, 4000 Hz, and 8000 Hz.

"Smoking" was also significantly related to hearing loss in the multiple regression analysis, so that smoking was related to hearing loss "in its own right". Without the significant correlation in the multiple analysis, the relationship of smoking to hearing loss would have been indirect, i.e., smoking might have been correlated with age, which is correlated with hearing loss.

E. Other variables

Non-conclusive results were obtained when the "Other Noisy Industry," "Recreational Noise" and "Ear Protection" variables were analyzed: these variables showed no statistically significant correlation to the hearing loss variables. On the other hand, coefficients (although too small to be significant), did indicate by their signs that the greater the exposure, the greater the hearing loss. The lack of significance of these variables is very likely due to the non-quantitative nature of the data, i.e., if it had been possible to determine the precise exposure from these sources, they may have shown up as more significantly related to hearing loss.

Discussion

Although the sample size in the present survey was too small to draw specific conclusions, some significant trends are worth emphasizing:

1. Among dentists of similar age, those with the highest "chair-machine years" tended to have the greater hearing loss.
2. When audiograms were classified as "abnormal", there was a tendency for the results to be asymmetrical, with the left ear loss greater than the right ear. A similar trend was found by Taylor, Pearson and Mair,[5] who attributed this to the fact that the right-handed operator exposes his left ear more directly to the noise source.
3. Smoking was significantly related to hearing loss in both the multiple regression analysis and the correlation coefficient data. This relationship has also been found in other studies comparing hearing loss with smoking habits. Wilson,[9] in the U.S. Government Report, showed a higher incidence of hearing impairment in heavy smokers than in non-smokers. Similarly, Friedman, Siegel and Seltzer[10] indicated "an association between cigarette smoking and exposure to several occupational hazards" and cautioned that when investigating the consequences of occupational exposures, "smoking habits of the study subjects should be taken into account."

Summary

The data obtained in this survey suggest that noise in dental offices may be a health hazard to individuals working in such an environment. Studies of a quantitative nature may be useful in defining more specific relationships between hearing loss and other factors such as noise exposure, smoking, and whether the dentist is left or right handed.

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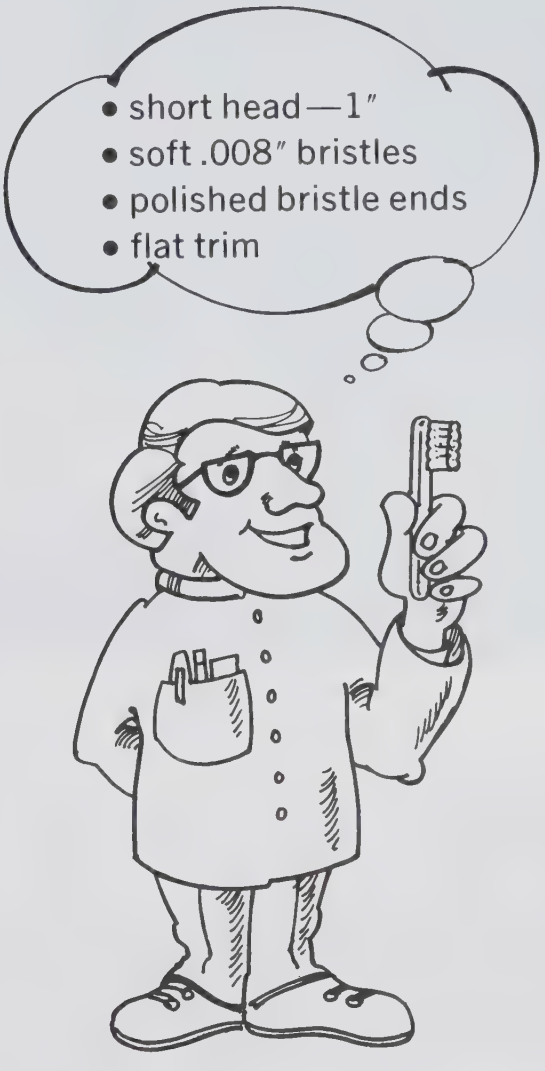

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SUPERNUMERARY PREMOLARS: REPORT OF TWO CASES

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A discussion of supernumerary teeth is presented and two case reports are described.

In the analysis of supernumerary teeth amongst populations of different countries, Pindborg[1] noted that the prevalence rate ranges from 0.1 to 3.6 per cent. In his study of 500 supernumerary teeth, Stafne[2] noted that the frequency of supernumerary teeth in the area of incisors is 51 per cent, molars 40 per cent, premolars 8 per cent and canine 1 per cent. Thus, occurrence of supernumerary premolars is rare.

Unlike incisors, canines and molars, supernumerary premolars occur more frequently in the mandible than the maxilla and resemble normal teeth in shape and size.[2,3] Oehlers,[4] on the other hand, has observed that supplemental premolars are either conical or if well developed, invariably smaller than teeth of the normal series. Regardless of this difference in opinion, it appears that supernumerary premolars commence their development at a later time than that regarded as normal for the teeth of a particular region[2,5-7] and generally erupt on the lingual side.

The incidence of supernumerary premolar teeth is reported as 1 in 10,000 individuals.[8] Males are more frequently affected than females.[6] Cases have also been recorded in which supernumerary premolars recur following successive removal.[8] Since 75 per cent of the supernumerary premolars are impacted,[9] they may be discovered only by routine radiological examination. If such impacted supernumerary teeth are causing any malpositioning or delaying eruption of permanent teeth, early surgical intervention is required. Another characteristic of the mandibular supernumerary premolar is a marked tendency toward the formation of cysts.[8]

Case reports

Case 1 — Two impacted premolars were discovered in a 16 year old male during a routine complete intraoral radiological examination. They were located in the maxilla, one on each side, and their crown form appears to be conical (Fig 1). Unlike normally erupted premolars, the roots of the supernumerary premolars were only half formed and the crowns were smaller. Although radiologically both the supernumerary teeth were situated lingual to the normally erupted premolars, there was no evidence of their presence during intraoral examination. There was no evidence, clinically or in the medical history, of any systemic abnormalities suggesting nutritional or hormonal imbalance or a disease syndrome. The patient had full dentition in both the upper and lower arches and there was no history of extraction or orthodontic treatment. The family history of supernumerary teeth was negative.

Case 2 — A 42 year old male revealed two supernumerary premolars on radiograph during the course of intraoral restorative procedure. Both supernumerary teeth were located on the right side of the mandible (Fig. 2). The first one was located between the roots of erupted first and second premolars and was positioned slightly lingually; the second was located lingual to the second erupted premolar. Unlike Case 1, the crown size and form of both supernumerary premolars resembled their erupted normal counterpart and the root formation was completed. Also intraoral palpation revealed a slight lingual bulge in the region of the impacted supernumerary teeth. The right maxillary third molar was congenitally missing, whereas remaining third molars were impacted. Only the mandibular right molar was extracted. Both the medical and familial histories were negative, and the patient's dental history indicated that he had had no previous orthodontic treatment.

Discussion

A review of case reports by Price and Hoggins[6] and by Bowden[7] clearly indicates that generally, supernumerary premolar teeth occur simultaneously in several regions of the same mouth, and that the finding of one necessitates radiographic investigation of the remaining premolar re-

Left Side

Right Side

Fig 1 Intraoral radiograph of maxillary right and left premolar areas of a 16 year old male showing supernumerary premolar.

gion. Such supernumerary teeth are generally referred to as "the third dentition" or "post permanent dentition."[10,11] The possible histogenesis of "post permanent dentition" has been discussed by Saarenmaa[5] and Price and Hoggins.[6]

The aforementioned two cases may also be considered as post permanent dentition. Both patients are currently being kept under surveillance since there is no problem of eruption or malpositioning of the erupted teeth.

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Fig 2 Intraoral radiograph of mandibular right premolar area of a 42 year old male showing two supernumerary premolars.

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ASPECT PRATIQUE DE L'OCCLUSION EN DENTISTERIE RESTAURATIVE

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PARTIE I: DÉFINITIONS ET CONCEPTS

Il est difficile pour le généraliste de se familiariser avec les nouvelles conceptions et d'évaluer les nouveaux systèmes et techniques basés sur un nombre toujours croissant d'articulateurs et d'accessoires qui ont été offerts au cours de la dernière décade. Ces articles sont écrits dans un effort pour clarifier les conceptions actuelles et pour indiquer leur rôle dans la pratique de la dentisterie restaurative. Il est essentiel, avant de considérer les aspects pratiques de ce sujet, de définir les termes qui seront employés et de faire un bref aperçu des concepts de l'occlusion. La première partie de cet exposé sera donc limitée à la définition des termes employés et à la considération des concepts de l'occlusion. La second considérera l'application de ces concepts dans les procédures de la restauration de routine et la troisième à l'application des procédures de la restauration plus complexe.

Cet écrit considérera aussi les relations occlusales des dents, les mouvements de la mandibule et les relations des dents pendant la mastication et l'incision.

Occlusion

L'occlusion a été définie comme "la relation entre les surfaces occlusales du maxillaire et de la mandibule lorsque les dents sont en contact". Plusieurs relations occlusales ont été identifiées et il y a des différences dans la terminologie. Dans cet écrit, les termes décrits par Ramfjord et Ash[1] seront employés et les relations occlusales seront considérées en ces trois termes: 1. Occlusion centrique; 2. Occlusion centrique acquise; 3. Relation centrique.

Occlusion centrique

L'occlusion centrique est une position d'intercuspidation maximale en harmonie avec le mécanisme neuromusculaire. Dans ces situations où les dents sont en occlusion pendant la fonction, elles entrent dans cette relation. A la croissance, alors que la dentition permanente perce vers sa position, un plan occlusal d'intercuspidation se développe en harmonie avec le mécanisme neuromusculaire de la mandibule. Ces situations peuvent être reconnues cliniquement par l'examen de la ligne de cheminement de la fermeture de la mandibule dans sa position la plus reculée. Si la mandibule est fermée en position reculée, les dents se meuvent, soit directement en intercuspidation maximale, soit en glissant de 1 à 1½mm directement en avant vers cette position. Il n'y a pas de déviation latérale pendant ce glissement.

Occlusion centrique acquise

Le clinicien cependant, décèle un autre groupe de cas dans lesquels le mouvement de la fermeture de la mandibule en position la plus reculée est caractérisé par un certain degré de déviation vers la gauche ou vers la droite.

Souvent, ce mouvement latéral est rapidement diagnostiqué par l'observation attentive, à l'approche des incisives de la mandibule vers les incisives du maxillaire. On croit généralement que ce mouvement est causé par le guidage des dents, provenant d'une variété de causes. Cette relation occlusale est dite habituelle, excentrique ou encore occlusion centrique acquise.

Pour ces patients, cette relation agit comme leur occlusion centrique et le mécanisme neuromusculaire s'adapte pour guider la mandibule vers cette position acquise. Dans cette relation, il peut y avoir évidence d'un débalancement de l'activité musculaire qui peut se traduire par douleurs ou malaises.[2]

Occasionellement, en s'ajustant bilatéralement aux contacts prématurés, le mécanisme neuromusculaire provoque une position de la mandibule vers l'avant sans composante latérale. Cet ajustement peut être observé, à l'examen clinique, comme un glissement vers l'antérieur venant de la relation centrique, en plus grande proportion que la normale entre la relation et l'occlusion centriques. D'autres caractéristiques seraient trouvées dans de tels cas cliniques, comme par exemple, la pression des incisives de la mandibule contre les surfaces linguales des incisives maxillaires,[1] la mobilité anormale des incisives maxillaires, les surfaces d'usure au lingual des incisives maxillaires et enfin les espaces interproximaux entre les incisives du maillaire.

Relation Centrique

Dans la majorité des cas cliniques, il est possible de manipuler la mandibule pendant qu'elle est libre de contact et d'établir une position qui est distale à l'occlusion centrique. Si la mandibule est alors guidée vers le contact, les dents vont toucher et les dents de la mandibule vont glisser vers l'avant et vers le haut en occlusion centrique.[1]

Si le patient a une occlusion centrique acquise la fermeture, à partir de la relation centrique sur le contact des dents, va produire soit un glissement vers le haut, en avant et latéral, ou encore un glissement excessif vers l'avant en direction de la position de l'occlusion centrique acquise. Il semblerait que chez la majorité des patients qui ont une occlusion harmonieuse, deux positions peuvent être observées et enregistrées; par exemple, l'occlusion centrique et la relation centrique en ce sens que la relation centrique est distale à l'occlusion centrique. Si l'occlusion centrique est perdue par l'évolution d'une occlusion centrique acquise, ou par un manque d'intercuspidation venant de la perte des dents, sa relocalisation devient extrêmement difficile. La perte des relations occlusales constitue un des problèmes majeurs de la dentisterie restaurative et a conduit à bien des controverses.

Occlusion centrique et relation centrique

Dans la plupart des dentitions, la relation entre l'occlusion et la relation centriques est reconnue par le contact des dents en glissement vers le haut et vers l'avant (le triangle de Posselt).[3] Ceci se produit alors que les pentes distales des dents de la mandibule prennent contact avec les pentes mésiales des dents du maxillaire en se dirigeant vers l'intercuspidation maximale. Beaucoup d'inclinaisons de chaque côté de la dentition sont impliquées et les stress inter-dentaires sont distribués également dans la dentition. Des données cliniques favorisent l'idée que ce glissement n'est pas un fait normal pendant la mastication ou autre activité fonctionnelle,[4] bien que d'autres données cliniques suggèrent que ce mouvement peut se produire dans certains mouvements de la déglutition.[5-6]

Il est inhabituel que des conséquences pathologiques se développent à la suite de ce glissement vers l'avant.

Il faut reconnaître qu'un groupe restreint de patients ont une coïncidence de relation et d'occlusion centriques.[7] Chez ces patients, il ne se produit aucun glissement vers l'avant et vers le haut alors que les dents sont amenées en relation centrique et les dents entrent directement dans un arc de fermeture en intercuspidation maximale. Il n'y a pas d'analyse de faite sur ce type de cas ni de comparaison avec le parcours habituellement suivi.

Relation entre la relation centrique et l'occlusion centrique acquise

Dans les cas où les dents ont été perdues et où les dents restantes ont chevauché vers des positions nouvelles, il arrive fréquemment qu'à la fermeture, une dent rencontrera une antagoniste avant que quelque contact se produise sur une autre dent, créant ainsi un contact prématuré. Les sensations tactiles de cette région dirigent le mécanisme neuromusculaire vers un parcours de fermeture qui évitera le contact prématuré et permettra l'intercuspidation maximale des dents restantes. Si le changement dans la position de cette dent causant le contact prématuré continue, le mécanisme est progressif, avec progression du déplacement latéral dans le parcours de la fermeture dans le but d'éviter ce contact prématuré. Accompagnant ceci, il se produit un réarrangement de plusieurs dents dans un effort pour stabiliser la nouvelle position d'intercuspidation. L'ampleur de cette progression varie d'un cas à l'autre selon le potentiel du mouvement de la dent. De toute façon l'occlusion centrique est perdue.

D'autres termes sont employés dans la littérature pour décrire les trois relations occlusales que nous avons décrites. Ces autres termes sont énumérés comme suit:

Occlusion centrique:
- — Intercuspidation maximale
- — Position des dents
- — Position d'intercuspidation (Posselt)
- — Occlusion habituelle
- — Relation centrique

Relation centrique acquise:
- — Occlusion excentrique
- — Occlusion d'habitude

Relation centrique:
- — Position terminale
- — Position ligamentaire
- — Position reculée de contact

On voit que l'emploi des termes semblables pour décrire des relations occlusales différentes peut créer une confusion pour le lecteur et il est très important actuellement pour tout auteur de définir clairement les termes qu'il emploie.

Les mouvements de la mandibule

Les relations occlusales ci-haut décrites sont d'importantes positions terminales d'ordre pratique dans l'analyse occlusale et dans le transfert des cas sur un articulateur. Un autre aspect de l'occlusion, également important, est évidemment le mouvement de la mandibule dans ses relations multidirectionnelles. L'observation et l'enregistrement de ces mouvements est un peu plus difficile que le sont l'observation et l'enregistrement des relations occlusales. Pour fins d'analyses des mouvements complexes de la mandibule, on les étudie en plans sagittal, horizontal et frontal.

Si un stylet est relié au point centre-incisif de la mandibule et que ses mouvements sont tracés sur un dispositif d'enregistrement graphique, en plan sagittal, les mouvements-limite de la mandibule sont enregistrés et on obtient un diagramme tel qu'illustré. (Voir Fig. 1) Les points importants comme l'occlusion et la relation centri-

[1]Lesquelles peuvent être décelées cliniquement en appliquant un doigt contre les surfaces labiales des incisives du maxillaire alors que le patient amène ses dents en occlusion.

ques apparaîtront sur ce diagramme. De l'occlusion centrique (CO), la mandibule peut être reculée en relation centrique (RC), c'est un mouvement vers le bas et vers l'arrière produit par le guidage des dents du maxillaire. Alors que la mandibule ouvre à partir de la relation centrique, elle pivote sur son ''grand axe terminal'' et le tracé obtenu est l'arc CR-H.

Alors que la mandibule continue d'ouvrir, une translation condylienne s'engage et le traceur inscrit la ligne H-MO. Si maintenant la mandibule retourne en CO (occlusion centrique), les composantes antérieures du triangle de Posselt peuvent être tracées. La protrusion de la mandibule à partir de la CO est contrôlée en premier lieu par le guide antérieur alors que les incisives de la mandibule passent sur les surfaces linguales des dents du maxillaire et viennent en relation bout à bout.

Une protrusion plus accentuée est déterminée par la variation du guidage sur les dents postérieures jusqu'à la limite de la protrusion MP. L'ouverture de la mandibule à partir de ce point maximum de protrusion, donne l'arc de tracé MP-MO et arrive au même point d'ouverture maximum que le point de la limite postérieure.

La position de posture (repos de la mandibule) et les cheminements fonctionnels normaux se situent en deça de ce tracé limite. La lettre ''P'' indique une position typique de repos de la mandibule.

Les dimensions exactes du triangle de Posselt varient d'un patient à l'autre. On indique toutefois un exemple type:

CO à MP ..... 1cm.
CR à H .....2.5cm., i.e. (arc du grand axe)
CO à MO ..... 4cm.

L'enregistrement des mouvements de la mandibule en plan horizontal est généralement fait à l'aide d'une tige centrale qui dégage le guide des dents et on obtient ainsi l'arche gothique illustré en Fig. 2. On y voit la relation centrique, la position de protrusion maximale et les cheminements des excursions latérales. L'absence de contact des dents élimine l'enregistrement de l'occlusion centrique.

Le tracé des mouvements de la mandibule en plan frontal (coronaire) est habituellement pris alors que le patient mastique des aliments, donnant ainsi une représentation graphique du cycle de la mastication. Une grande variété de dessins se présente chez divers patients. Il y a également variétés selon différents aliments. Un exemple est donné en Fig. 3.

Relation des dents dans les mouvements de la mandibule

L'occlusion peut être examinée en guidant le patient à exécuter certains mouvements dits mouvements-diagnostic et y inclure plusieurs cheminements de mouvements. Etant donné que le patient ne mastique pas pendant ces mouvements-diagnostic, ils peuvent être réalisés lentement, arrêtés en certaines positions désirées, ou encore répétés au besoin. Bien entendu, ces mouvements ne sont pas fonctionnels et ne servent qu'à démontrer la relation possible des dents. Les dents, en fait, peuvent ne jamais prendre contact pendans la mastication.

Les mouvements-diagnostic sont: protrusion, excursion latérale gauche, excursion latérale à droite et rétrusion. Les mouvements de protrusion et rétrusion comprennent le cheminement de l'incision fonctionnelle. L'excursion latérale à gauche inclut le cheminement fonctionnel de la mastication sur le côté gauche de la bouche, l'excursion latérale à droite inclut les cheminements fonctionnels de la mastication sur le côté droit.

Alors que la mandibule fait protrusion, les incisives de la mandibule descendent sur les surfaces linguales des incisives du maxillaire jusqu'à ce qu'une relation bout à bout soit atteinte (Fig. 4). Dans une dentition normale, aucune dent postérieure n'entre en contact pendant ce mouvement. Dans la confection d'un pont antérieur, ce cheminement de protrusion est le déterminant du contour lingual des dents-pile et des pontiques ainsi que la position du bord incisif du pontique. La reproduction de ce mouvement sur les modèles de laboratoire est importante pour une fonction harmonieuse de la prothèse.

Excursion latérale

Alors que la mandibule se meut en excursion latérale à gauche, les dents se séparent les unes des autres, mouvement produit par les cuspides buccales de la mandibule qui glissent sur les plans inclinés des cuspides buccales des dents du maxillaire. Alors que se continue l'excursion latérale, progressivement, moins de dents restent en contact, jusqu'à ce que les cuspides buccaux de la mandibule et du maxillaire soient verticalement en ligne, et seulement la canine du maxillaire peut être en contact avec les dents de la mandibule (Fig. 5). La canine est considérée comme jouant un rôle déterminant dans le guidage neuromusculaire des mouvements d'excursion latérale. Cependant, chez bien des patients, les incisives, latérales, les prémolaires et molaires peuvent également rester en contact pendant le mouvement-diagnostic latéral.

L'excursion latérale à gauche indique les relations de travail des dents sur le côté gauche lorsqu'un aliment est mastiqué sur ce côté de la bouche. Si l'excursion latérale à gauche est répétée, et qu'on examine les relations des dents du côté droit pendant le mouvement à gauche, on constatera que les dents se séparent tôt dans le mouvement latéral, et qu'à la position terminale préalablement définie, il n'y aura pas de contact entre les dents du maillaire et de la mandibule. Ce mouvement démontre les relations des dents sur le côté balançant lorsqu'un aliment est mastiqué sur le côté gauche.

Si la mandibule se meut en excursion latérale droite, on observe la même suite d'évènements (Fig. 6). Les relations des dents, cependant, ne seront pas identiques au côté gauche, et il est possible que les dents en contact en position terminale puissent être différentes. Si le côté gauche est examiné pendant l'excursion latérale à droite, les relations

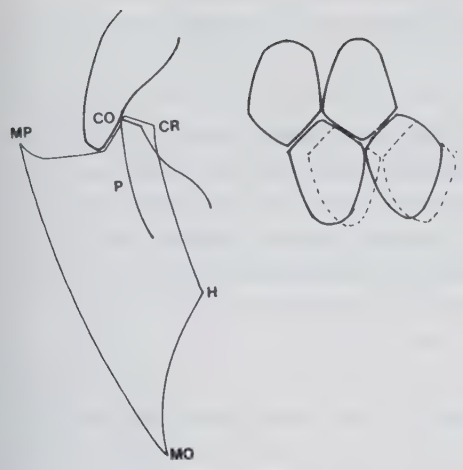

Fig 1 Mouvements limité en plan sagittal: CO — Occlusion centrique; CR — Relation centrique; H — Ouverture; MO — Ouverture maximale; MP — Protrusion maximale; P — Posture.

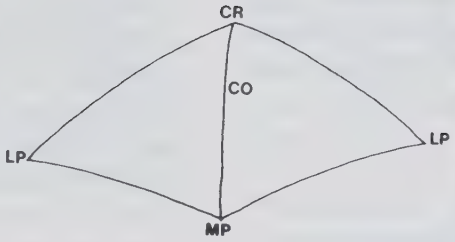

Fig 2 Mouvements limité en plan horizontal: CO — Occlusion centrique; CR — Relation centrique; LP — Excursion latérale; MP — Protrusion maximale.

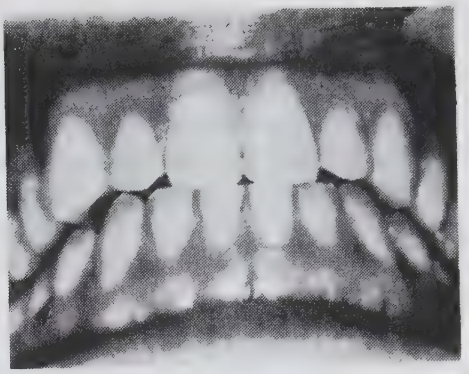

Fig 4 Guidage antérieur dans la protrusion de la mandibule.

Fig 5 Guidage en latéralité gauche.

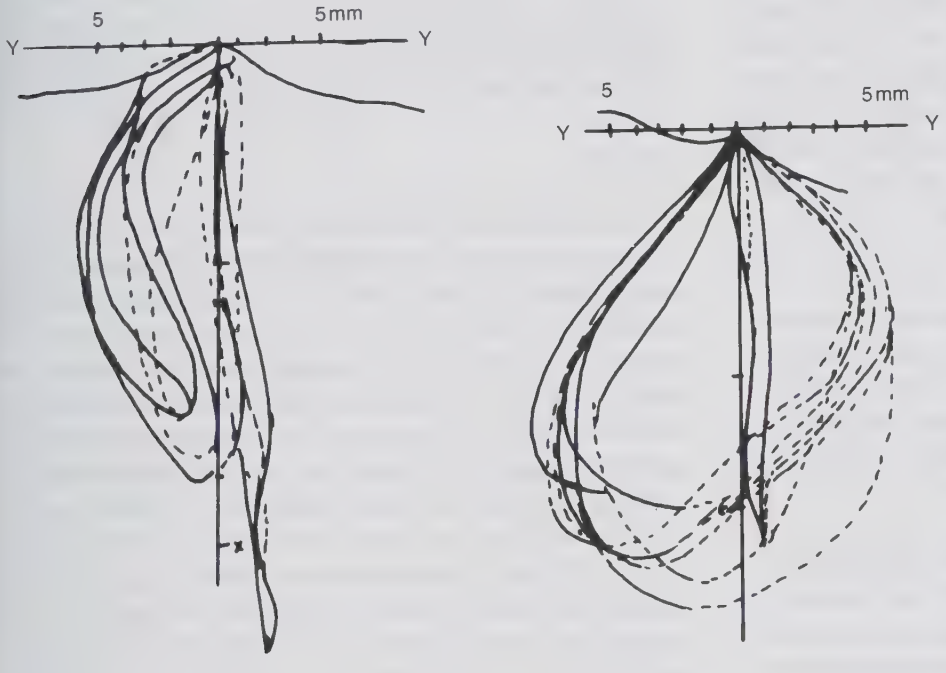

Fig 3 Mouvements de la mandibule à l'ouverture (physiologique) plan coronaire.

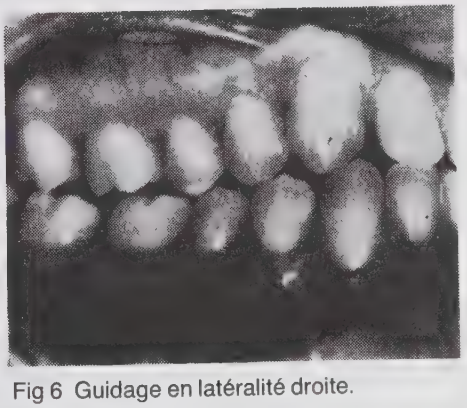

Fig 6 Guidage en latéralité droite.

des dents sur le côté balançant pendant la mastication sur le côté droit de la bouche seront observables.

Retrusion

Si la mandibule du patient est retenue entre le pouce et l'index, l'ongle du pouce reposant sur le bord des incisives inférieures et l'index replié sous le menton, la mandibule peut être ouverte ou fermée et les incisives du maxillaire frappent sur l'ongle du pouce. De cette manière, on prévient le guidage par les plans inclinés des dents. Lorsque le patient relâche et que la mandibule peut être dirigée facilement en haut et en bas, la mandibule se meut légèrement vers le distal et si l'ongle du pouce est retiré et que les dents sont amenées ensemble, on constatera que les dents de la mandibule font contact avec les dents du maxillaire et qu'ensuite elles glissent légèrement en avant vers l'intercuspidation complète.

Le glissement vers l'antérieur a lieu lorsque les inclinaisons distales des dents de la mandibule glissent sur les inclinaisons mésiales des dents du maxillaire. La retrusion de la mandibule donne une relation entre le maxillaire et la mandibule qui est déterminée par le J.T.M. où il n'y a aucun guidage venant des dents. C'est la relation centrique.

Relation à l'incisif

Deux aspects bien reconnus et importants de la relation des incisives sont le recouvrement vertical et horizontal.

Recouvrement vertical

On réfère ici à la relation verticale des incisives lorsque les antagonistes postérieures sont en contact en occlusion centrique.[1] Il y a variation clinique d'une relation bout à bout à une situation où les incisives du maxillaire recouvrent complètement les incisives de la mandibule. Cliniquement, toutes les variations entre ces deux extrêmes sont admises.

Recouvrement horizontal

Ce terme s'applique à la relation horizontale des incisives. Il y a variation à partir d'une position prognathique où les incisives de la mandibule sont labiales aux incisives du maxillaire, à une situation où les incisives de la mandibule sont, à degré variable, linguales aux incisives du maxillaire. Dans la situation clinique typique, les incisives de la mandibule sont en relation avec les surfaces linguales des incisives du maxillaire avec un recouvrement horizontal de 2 à 3mm et un recouvrement vertical de 2 à 4mm. Un autre aspect intéressant de la relation incisive, aspect pas encore entièrement déterminé, est la question des arrêts centriques. Dans la majorité des cas où les dents sont en occlusion centrique ou en occlusion centrique habituelle, il y a des espaces très minces entre les incisives de la mandibule et du maxillaire. Cependant, dans un nombre restreint de cas cliniques, il y a contact. La signification de ces deux relations précitées n'est pas complètement comprise.

Guide antérieur

Bien évidemment, la relation entre les incisives du maxillaire et de la mandibule va déterminer la nature et l'étendue du guidage incisif et dans la dentition en fonction, elle va s'harmoniser avec les autres facteurs-clés de l'occlusion. On peut observer une grande variété de guidage antérieurs.

Guidage par la canine

Dans bien des cas, la relation de la canine maxillaire aux dents de la mandibule, va guider la mandibule pendant la fermeture vers une relation axiale et sert comme mécanisme d'entraînement dans le développement d'une coulisse masticatoire qui assujettira les dents au minimum de stress. Il est important de reconnaître que ce guidage mécanique n'est probablement pas un guidage dent contre dent. Il s'agit plutôt d'un système de message dans lequel l'information sur le rapprochement progressif des dents du maxillaire et de la mandibule est transmise au mécanisme de contrôle du système nerveux central de sorte que le guidage survient par le médium de la masse alimentaire interposée sans qu'il y ait contact des dents.[8]

Mastication et incision

Il est très difficile d'étudier les mouvements fonctionnels de la mandibule et de la relation exacte des dents pendant l'activité de la mastication et de l'incision. Malgré l'application des techniques, sophistiquées de la télémétrie et de l'électromyographie, notre compréhension de ces fonctions est loin d'être complète. Une hypothèse valable, cependant, peut être amorcée sur des détails connus. Dans cette dimension, il convient de considérer la mastication et l'incision séparément.

Mastication

La clé de la mastication semble reposer sur la compréhension du contrôle neuromusculaire du mouvement de la mandibule. Le mécanisme neuromusculaire peut être imaginé comme un phénomène circulaire dans lequel les impulsions efférentes du système nerveux central stimulent les muscles de la mastication dans une demie du cycle, alors que dans l'autre demie, les impulsions afférentes venant du périodonte, de la muqueuse de la bouche, des dents et du J.T.M. envoient les messages au système nerveux central.[8] Le développement des mouvements de la mastication par ce mécanisme est le résultat d'un long processus conditionné qui commence à l'enfance et progresse pendant la vie. Le mécanisme possède une capacité pour palier aux variétés des situations changeantes. Il y a assez de données pour interpréter le concept de la mastication comme étant le morcellement du bol alimentaire avec le minimum de stress sur les dents et sur les structures de support. La structure de la membrane péridentaire porte à croire que les stress dans l'axe long des dents sont les plus facilement reçus et tolérés. Le système masticatoire qui favorise ce fait est donc le plus favorable.

Le contact des dents pendant la mastication

Il est évident[4] que les contacts des dents peuvent se produire pendant la mastication et lorsque contact il y a, c'est probablement en deça de 1 ou 2mm buccalement ou lingualement à l'occlusion centrique. Il est presque certain que le contact ne se produit pas dans tous les coups de la mastication et que la fréquence de contact varie d'après la nature individuelle de l'aliment et d'après la phase de mastication d'un bol alimentaire particulier. Il semble que le contact ne soit pas une partie essentielle d'une mastication efficace et que le mécanisme neuromusculaire est programmé de façon à arrêter la plupart des contacts de la mastication avant qu'ils ne se produisent. Une telle activité est certainement compatible avec le concept de la protection des dents et des tissus contre le stress indu.

Le contact des dents à l'incision

Pendant l'incision, les dents antérieures fonctionnent dans un mouvement similaire à celui d'un ciseau. Le bord incisif des incisives de la mandibule fait un mouvement de glissement contre la surface linguale des incisives maxillaires détachant une portion de l'aliment pour la mastication par les dents postérieures. Ce mouvement est habituellement accompagné par un geste de déchirement alors que la main détache le reste de l'aliment de la bouche. La façon exacte d'inciser varie selon le degré de surplomb et de supraclusion. Chez les patients à surplomb et supraclusion accentués, les incisives de la mandibule pénètrent dans l'aliment, approchent de la surface linguale des incisives du maxillaire et n'ont pas une relation bout à bout. Moins il y a de surplomb et de supraclusion, plus l'action incisive tend vers une relation bout à bout.

Le contact des dents à la déglutition

Les données veulent que les dents fassent contact à la déglutition et que la nature du contact varie avec le genre de déglution et elle peut se produire avec ou sans contact. Lorsqu'il y a contact, ce contact peut être en occlusion centrique ou en une position postérieure à l'occlusion centrique. De récentes recherches confirment l'idée que lorsque le contact arrive pendant la déglutition consécutive à la mastication d'aliments, le contact se fait en occlusion centrique et rarement en relation centrique.[4]

PARTIE II

L'ANALYSE POUR LES PROCÉDURES DE RESTAURATION

L'analyse de l'occlusion décrite dans les pages suivantes se limite aux facteurs qui sont spécialement importants à l'élaboration d'un plan de traitement pour la dentisterie restaurative. On prend pour acquis que les problèmes sévères de l'occlusion, des complications du J.T.M., de périodontie ont tous été traités de façon satisfaisante et c'est pourquoi on omet de considérer ces facteurs.

Examen

En poursuivant l'analyse de l'occlusion, il est important d'établir une relation de détente avec le patient et éviter d'attirer plus d'attention qu'il n'en faut aux contacts prématurés, aux glissements en centrique et autres anormalités dont le patient n'est possiblement pas au courant. L'examen des éléments externes de l'occlusion peut être amorcé pendant la conversation et des observations peuvent être faites sur les relations incisives, la ligne de la lèvre, la musculature de la face, la symétrie et l'attitude mentale du patient.

Poursuivant l'examen plus détaillé de l'occlusion, le patient est invité à faire quelques mouvements mandibulaires libres. On lui demande d'ouvrir et de fermer la bouche, de serrer les dents et d'aller en excursions latérales. Le patient peut pouvoir rétracter ses lèvres de sorte que les dents puissent être observées. Sinon, il est nécessaire de les rétracter manuellement. Lorsque la bouche ouvre et ferme, la relation de la ligne médiane des incisives est notée pour déceler toute déviation latérale. La façon selon laquelle les dents entrent en occlusion doit être attentivement examinée tout en prenant note si les dents se meuvent directement vers l'intercuspidation maximale ou s'il existe quelques glissements. Le fait de serrer les dents peut signifier des débalancements occlusaux qui peuvent être décelés en appuyant le doigt sur les surfaces buccales des dents lorsqu'elles se rencontrent.

Déterminant des cuspes

Le patient est guidé dans les mouvements-diagnostic décrits en première partie. L'observation de ces divers mouvements de la manière décrite auparavant révélera les cuspides principaux en excursion latérale, les contacts balançant s'il y en a, les cheminements du guidage antérieur en protrusion, la relation entre l'occlusion et la relation centriques, ainsi que la nature, la direction et l'importance de tout glissement. Les cuspides principaux de l'excursion latérale peuvent varier de la canine seulement, de la canine et d'un nombre variable d'autres dents, tant mésiales que distales à la canine. En certains cas, la canine peut ne pas être impliquée et le guidage incombe à d'autres dents. Les plans de guidage doivent être attentivement notés et enregistrés.

Côté balançant

L'examen du côté balançant en excursion latérale révélera la présence de tout contact dans cette relation. La plupart du temps, il n'y aura aucun contact, mais s'il y en a, il est généralement admis qu'ils doivent être enlevés par meulage ou recontour à l'aide de restauration, suivant la situation. On doit garder à l'esprit les concepts de base de l'ajustement occlusal[1] en faisant de telles modifications et se souvenir que les interférences du côté balançant arrivent entre les cuspes de support dont chacun agit comme arrêt occlusal en occlusion centrique. La modification doit donc être restreinte à un des cuspes interférents. La réduction des deux cuspes amènerait à la perte des arrêts centriques entre les dents impliquées.

Guidage antérieur

En examinant les cheminements du guidage antérieur en protrusion, la zone des surfaces linguales des dents du maxillaire contre lesquelles les dents de la mandibule font contact en protrusion doivent être identifiés et enregistrés. La signification de cette relation a été évaluée à la partie I.

Glissement en centrique

Un autre aspect important qui demande analyse est la nature de chaque glissement en occlusion centrique venant de la relation centrique. On voit une grande variété de glissements dans les cas cliniques. Pour fin de commodité, on distingue quatre (4) catégories de glissements en centrique et bien qu'elles n'incluent pas toutes les situations, elles arrivent fréquemment. Cette classification constitue une hypothèse valable de travail.

1. Les cas dans lesquels un glissement antérieur survient sur plusieurs plans inclinés aux dents postérieures sans qu'il y ait pression des incisives de la mandibule contre les surfaces linguales des incisives du maxillaire.
2. Les cas dans lesquels un glissement antérieur et latéral arrive sur plusieurs plans inclinés aux dents postérieures sans qu'il y ait pression des incisives de la mandibule contre les surfaces linguales des incisives maxillaires.
3. Les cas dans lesquels un glissement antérieur arrive sur un ou deux plans inclinés facilement reconnaissables aux dents postérieures (contact prématuré) accompagné par la pression des incisives de la mandibule contre la surface linguale des incisives du maxillaire.
4. Les cas dans lesquels un glissement antérieur et latéral arrive sur un ou deux contacts prématués accompagnés par la pression des incisives de la mandibule contre la surface linguale des incisives du maxillaire.

Les glissements de type 3 et 4 en raison de la pression des dents de la mandibule sur les dents du maxillaire peuvent être responsables de la mobilité croissante d'une dent, du mouvement des dents et la perte de contact interproximal. Dépendant de la nature des contacts prématurés, ces influences peuvent être progressives dans leurs effets délatoires conduisant à plus de mouvements des dents et à plus de diastèmes. Les contacts prématurés des types 3 et 4 demandent un ajustement et une correction et l'établissement d'une occlusion centrique stable libre de toute pression sur les dents antérieures.

Dans les types 1 et 2, l'ajustement de l'occlusion n'est pas indiqué et elle serait excessivement difficile à accomplir de façon permanente. Si on accepte le concept du contrôle propriocepteur du mécanisme neuromusculaire pendant la fonction, tout patient sera donc programmé individuellement selon chaque relation existante dans les dents. Si les relations existantes ne provoquent aucune condition pathologique comme mobilité, usure excessive ou sensibilité, cette occlusion reste la meilleure pour ce patient.

Dans les quatre (4) catégories, si on demande au patient de fermer et d'ouvrir la bouche, on constatera que les dents se meuvent directement vers l'intercuspidation maximale sans glissement observable, sauf dans les cas qui ont été entraînés par erreur, à fermer en retrusion. Seulement en guidant le patient vers une position le plus en rétrusion avant de fermer, est-il possible de démontrer le glissement et de localiser le contact prématué où il existe?

On doit se souvenir que dans un mince poucentage de patients on rencontre une relation centrique qui coïncide avec l'occlusion centrique et qu'il n'y ait pas de glissement.

Plan de l'occlusion

Le plan de l'occlusion est examiné pour déceler toute irrégularité due à l'extrusion ou le déplacement des dents. De telles dents sont souvent en contact prématuré avec leur antagonistes ou peuvent présenter des interférences au côté balançant. Un examen attentif de ces dents ayant des surfaces d'usure significative est requis. Leur relation dans les mouvements diagnostic doivent également être observée attentivement et on doit faire une projection de cette relation pour toute restauration future. Si possible, elles sont recontournées par restauration et un plan occlusal normal est rétabli de nouveau.

Plan de traitement

Si l'examen de l'occlusion a été complété de façon satisfaisante et que l'occlusion tombe en catégorie I ou II, aucune autre analyse n'est requise et la reconstruction du cas peut être enterprise en occlusion centrique. Si le cas en catégorie III ou IV, l'élimination des contacts prématurés et la correction de la pression incisive sont désirables. Si les contacts prématurés peuvent être identifiés par l'examen et que le meulage sélectif est effectué, dans la plupart des cas, la pression incisive peut être éliminée. La reconstruction peut alors être faite en occlusion centrique.

Si des changements doivent être introduits, quelle serait la base de ces changements et quels principes devraient être appliqués dans leurs dessins? Si ces concepts de l'occlusion sont acceptés chez le patient ayant quelques dents manquantes, la reconstruction est faite logiquement dans la relation d'occlusion centrique, acceptant la relation fonctionnelle optimale de chaque cas particulier. L'occlusion centrique est employée ici dans le sens de intercuspidation maximale et peut, bien sûr, être une relation acquise. Si le cas tombe en catégorie III ou IV et qu'il y a difficulté à localiser les contacts prématurés à l'examen, il devient nécessaire de monter les modèles sur un articulateur ajustable. Toute technique de montage est reconnue acceptable à condition que les modèles soient en occlusion centrique. Les procédures d'analyse occlusale peuvent alors être faites sur l'articulateur, les contacts prématurés peuvent être localisés et ajustés sur le modèle. On prend note de la localisation et de l'étendue de tous les ajustements et la séquence de l'ajustement est reproduite en bouche. Lorsque la bouche a été ajustée, la reconstruction du cas peut être apportée en occlusion centrique.

Dans tous les cas où la reconstruction est faite sur l'articulateur en occlusion centrique, il est nécessaire d'évaluer la restauration en relation centrique, ceci peut être fait commodément en bouche lorsque la restauration est en essai. Avec la restauration en place et après contrôle des excursions latérales et en protrusion, la mandibule est guidée dans la position la plus reculée et le glissement en centrique observé. Toute déviation d'un glissement préalablement observé est causé par un contact prématuré de la restauration; ils peuvent être localisés et corrigés.

Certains patients éprouvent des difficultés en faisant des mouvements de la mandibule et sont incapables d'exécuter de façon satisfaisante les mouvements-diagnostic. L'analyse occlusale de ces cas est mieux faite sur des modèles d'étude montés en centrique sur un articulateur ajustable.

PARTIE III

LIGNE DE CONDUITE DANS LE DIAGNOSTIC DE LA RESTAURATION COMPLEXE

Dans la seconde partie, les étapes de l'analyse de l'occlusion pour la restauration des cas de routine ont été proposés sur une base de reconstruction en occlusion centrique. Il reste un groupe de cas dans lesquels la détérioration occlusale s'est étendue sur une longue période de temps. Ces cas complexes présentent des problèmes spéciaux. Ils peuvent être reconnus durant l'analyse de l'occlusion par la présence de:

1. Quelques dents restantes.
2. Spasmes des muscles de la mastication.
3. Difficulté de guider le patient vers sa relation centrique.
4. Influence des dents jusqu'à une position centrique acquise.

Un déséquilibre important entre l'occlusion centrique et la relation centrique.
. Image pathologique du guidage occlusal (guidage des dents).

En plus, on peut trouver une ou toutes les situations suivantes:

. Un plan occlusal irrégulier.
. Dysfonction du J.T.M.
. Un changement dans la dimension verticale.
. Usure excessive des surfaces occlusales en relation avec une parafonction.
. Une variété de problèmes d'ordre gingival.

Si ces cas complexes sont rebâtis dans leur occlusion centrique acquise, l'échec est inévitable. Ces patients sont emprisonnés dans une occlusion centrique acquise qui est loin d'une relation harmonieuse et est accompagnée de spasmes musculaires. Pendant la reconstruction, le guidage anormal des dents est éliminé et l'occlusion centrique acquise est libérée. Le repositionnement de la mandibule s'installe à une nouvelle occlusion centrique qui n'est pas encore en harmonie avec les restaurations et une intercuspidation satisfaisante est bientôt perdue après que les restaurations sont placées. La clé du succès dans le traitement de ces cas repose donc dans l'élimination du guidage anormal des dents, le soulagement du spasme musculaire et le reconditionnement de la mandibule en relation harmonieuse et stable avec le maxillaire avant que la reconstruction soit commencée. Alors une occlusion se développe de façon fonctionnelle et en pleine intercuspidation. L'occlusion centrique est une position déterminée par les dents et dans les cas que l'on considère maintenant, l'intercuspidation est enlevée durant la préparation. La seule position de référence stable qui reste est la position de relation centrique, une position déterminée par le J.T.M. Toute reconstruction de ces cas complexes doit être faite en rapport avec la relation centrique.

Dans la plupart des dentitions normales, l'intercuspidation maximale (occlusion centrique) est légèrement antérieure à la relation centrique, et beaucoup de controverses subsistent concernant la reconstruction de l'occlusion en relation centrique. Jusqu'à présent, deux modes de traitements ont été employés; dans l'un d'eux, une occlusion avec intercuspidation maximale et faite en relation centrique, ce qu'on appelle ''Concept gnathologique''. Dans l'autre, une occlusion est développée avec une liberté de mouvement de la relation centrique, on l'appelle ''Long Centric Concept''. Les données cliniques indiquent que chacune de ces méthodes, lorsque bien appliquée, est satisfaisante. Sûrement le mécanisme neuro-musculaire sert de facteur compensateur pour ces cas.

Il semblerait que chacun de ces moyens tend à développer une occlusion qui est anormale pour un grand pourcentage de la population et que le résultat idéal serait de relocaliser l'occlusion centrique originale.

Occlusion centrique et relation centrique

La relation centrique n'est pas une position de fonction et dans la plupart des cas, elle ne peut être obtenue qu'en guidant la mandibule dans la position la plus reculée, c'est-à-dire une position déterminée par le J.T.M. D'autre part, l'occlusion centrique est la position terminale du cyle de mastication normale. Est-ce que la clé de sa relocalisation repose alors dans l'activité des muscles de la mastication? Pourrait-elle être relocalisée en enregistrant le point terminal de l'activité masticatoire? Est-ce que la stimulation artificielle des muscles de la mastication pourrait relocaliser l'occlusion centrique? Un effort pour répondre à ces questions semble reposer dans le développement et l'emploi du myomoniteur de Jankelson, un accessoire pour stimuler électriquement les muscles de la mastication. Ceux qui ont employé cet appareil prétendent pouvoir enregistrer les relations tant verticales qu'horizontales de la mandibule. La relation horizontale enregistrée est déterminée par les muscles et repose antérieurement à la position la plus reculée de la mandibule. Que cette relation myocentrique, comme on l'appelle, soit l'occlusion centrique originale, il est difficile de le déterminer et on a besoin d'investigations.

Sommaire

Dans ces écrits, un effort a été fait pour définir et discuter ces aspects de l'occlusion particulièrement intéressants pour la dentisterie restaurative. Les étapes premières dans l'analyse de l'occlusion ont été décrites. Les implications des déterminants des cuspes, le guidage antérieur, le glissement en centrique et le plan d'occlusion dans l'élaboration du plan de traitement ont été discutés. Il est recommandé que la restauration des bouches ayant seulement quelques dents manquantes soit faite en occlusion centrique. L'influence de ces données dans le développement du plan de traitement en dentisterie restaurative a été indiqué en termes généraux. Certains genres d'occlusion qui sont significatifs dans le plan de traitement ont été décrits et on a suggéré une classification pour ces cas-types de ''glissement en centrique''. Les signes cliniques par lesquels les cas de restauration complexes peuvent être identifiés ont également été considérés.

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BRITISH COLUMBIA — Chilliwack. For sale: Office designed for modern preventive dentistry. Two operatories plus hygienist operatory and plaque control room. 1000 sq. ft. at reasonable rent in medical dental building. Office is well maintained and reasonably priced. Located in Chilliwack, British Columbia, a pretty little town in the Fraser Valley. One hour from Vancouver. Excellent skiing, boating, and hiking close-by. For information contact: Dr. Mike Thomas, 203-299 Main Street, Chilliwack, B.C., or phone collect: (604) 792-0021 (office), or (604) 795-9818 (residence).

BRITISH COLUMBIA — Kamloops. Dentist closing office and discontinuing practice. Excellent opportunity for new dentist to acquire very active patient load. Also available are two complete spaceline units that are five years old. Contact: Dr. D.L. Bredo, No. 8-74 West Seymour St., Kamloops, B.C., or phone: 374-6669.

BRITISH COLUMBIA — Kamloops. For sale: Well established preventive practice in modern professional building. Four operatories — three fully equipped. Excellent opportunity for one or two preventive-oriented dentists. Excellent gross on cash basis. Owner specializing. Reply to C.D.A. Box Number 1762.

BRITISH COLUMBIA — Powell River. Associates wanted: with view t purchase or rent all or part of area. Large general practice, established 2 years. Eighty miles north of Vancouver on the Sunshine Coast Highway, o Ocean front. Salt water yacht harbour in middle of town, 30 mile long lake a the edge of town, trout lakes all around, airport one mile from office, 30,00 population. Five chair office, Weber and Dental-Eze. Ninety per cent prepai plans, hospital privileges. Situated in middle of two shopping plazas, pos office/federal and provincial building. Adjoins medical clinic, shares larg parking lot. Reply to: Dr. R. M. Carmichael, 4794B Joyce Ave., Powell River B.C. V8A 3B6. Phone: 485-4860 or 485-5058.

BRITISH COLUMBIA — Terrace North West. Practice for sale. Will con sider associate with view to purchase. Excellent starter practice for young graduate for four to five years while you get your feet wet and decide how and where you want your practice to be. Experienced staff, preventive oriented practice in four handed dentistry, modern equipment. Contact: Dr L.J. Talarico, 10-4546 Park Ave., Terrace, B.C. V8G 1V4.

BRITISH COLUMBIA — Vancouver. Practice for sale: Downtown Van couver. 880 sq. ft., renovated 2 years ago. Two full operatories and plumbe for third. Owner going to graduate school. Inquiries phone: (604) 682-0574 or write: Sinscot, No. 717-925 W. Georgia St., Vancouver, B.C. V6C 1R5.

BRITISH COLUMBIA — Victoria. For Sale. Two-operatory practice i downtown Victoria, with emphasis on relaxed and enjoyable conditions fo both patients and staff. Good gross on cash basis. Reply to CDA Bo Number 1736.

BRITISH COLUMBIA. Practice grossing over $400,000/yr. suitable for tw working partners, or one ambitious individual who wishes to employ asso ciates. Beautiful area of the province out of the rat race of large cities. Repl to CDA Box Number 1773.

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ALBERTA — Edmonton. Suburban practice in modern professional build ing, unlimited potential, moderately priced, terms can be arranged. Goo gross, cash basis. Reply to CDA Box Number 1775.

ALBERTA — Edmonton. For sale or lease. Dental practice in a new denta clinic. Latest in equipment, including Panorex, and Dental-Eze Truth Sys tems. Share expenses with another dentist. Prevention-oriented with patien education area and full time hygienist. Gross over $150,000 year. Rar opportunity for right person. Nothing down. Assume lease payments an have immediate income. Present dentist retiring. Reply to CDA Box Numbe 1776.

SASKATCHEWAN — Neilburg. Dentist required to serve a community o 3,000. Neilburg is centrally located half-way between Saskatoon and Ed monton. This friendly area is active in sports, both winter and summer — a excellent place for a young family. This new practice offers an opportunit for a lucrative career. Please reply to: Secretary of Neilburg Board of Trade Box 125, Neilburg, Saskatchewan, S0M 2C0.

ONTARIO — Brockville. Practice available. Owner retiring. Long established general practice, located in the City of Brockville, on the St Lawrence River. Two operatories, laboratory, dark room, business office and reception room. Rent reasonable. For information contact: Dave McCul lough. Phone: (416) 528-3376 or (416) 640-5204 or write: Dr. I.F. Calder, 9 King St. E., Brockville, Ont.

ONTARIO — Toronto. For sale: Office located in Bathurst and Lawrence area. Includes all leasehold improvements: leaded walls, cabinetry, furni ture, fixtures and equipment. Location in existence 15 years. Two fully equipped operatories; private and business offices; reception; dark room and labs. Approximately 750 sq. ft. Available April/May 1978. Rent to be negotiated. Reply to CDA Box Number 1765, or phone: (416) 781-4881.

ONTARIO — Toronto (Willowdale). For rent: three day a week practice Period July 1978 to July 1979. Inexpensive. Owner leaving country for one year and wishes replacement in his absence. Possibility of sale if terms can be reached. Contact: Dr. Barry Brooks, 5927 Yonge Street, Willowdale Ont., or phone: (416) 223-0598.

ONTARIO — East of Toronto. Busy practice for sale (30 minute drive from metro center), established family practice, professionally designed, 1200 sq. ft. facility in Medical-Dental building, 3 operatories now equipped, Adec carts — Dental-Eze, room for more, hospital privileges available, above average earnings, owner returning to U.S. For additional information con tact: Roi Management and Materials Inc., Mississauga, Ont. Phone: (416) 278-4145.

ONTARIO — Windsor. For sale — high gross, well-established preventive oriented family practice; 2400 sq. ft., 7 operatories — 4 fully equipped; large business office; 2 private offices; consultation room; analgesia; panelipse; audio-visual; modern, well decorated lower level of two storey building. Unique opportunity for 1 or 2 dentists. Owner returning to postgraduate school. Building also available. Contact: Dr. J. Ghilzon (519) 258-2253.

ONTARIO — Windsor. Space available for specialist in periodontics, pedodontics or orthodontics in modern preventive oriented suburban office. Full-time hygienist on staff. Contact: Dr. Michael Malowitz, 7610 Tecumseh Road East, Suite 207, Windsor, Ont. N8T 1E9, or phone: (519) 944-2424.

ONTARIO — Modern 3 operatory practice for sale. Room for expansion available if desired. Fully equipped with Dental-Eze chairs, Adec carts, central vacuum and air-conditioning, Philips x-ray and nitrous. Hospital privileges available. Excellent facilities in a modern medical centre, just half-hour from central Toronto. For further details, e.g., gross income, lease, etc., reply to CDA Box Number 1769.

QUEBEC — Montreal. Practice for sale in downtown Montreal in brand new office complex. Office space is shared with a partner. Personnel include part-time hygienist and associate. Equipment includes two Cox units with Dental-Eze chairs, General Electric Panelipse and Litton PR6 auto developer. Good traffic with high gross. Reply to CDA Box Number 1747.

QUEBEC — Montreal (Snowdon area). For sale: restorative dental practice established 10 years. Spacious, luxurious office consisting of 3 operatories all re-equipped since 1976. Unique opportunity for 1 or 2 dentists to step into high gross quality practice with unlimited potential. Present owner returning to graduate school. Reply to CDA Box Number 1772.

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OPPORTUNITIES WANTED

ONTARIO — London. Young experienced dentist wishes locums for a period of 3 months while dentist vacations or takes course. Reply to CDA Box Number 1768.

ONTARIO — Toronto. Recent graduate desires to purchase or associate in a preventive oriented practice with partnership prospects in Toronto or surrounding area. Presently completing dental internship in Toronto hospital with emphasis in restorative dentistry, oral surgery, diagnosis, periodontics, endodontics and medical management. Phone (416) 787-8972.

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BRITISH COLUMBIA — Burnaby. 7 miles from downtown Vancouver. General practitioner required to associate with a Pedodontist. Both practices are well established. Approximately ten per cent Chinese patients. 5 modern operatories and Panelipse. Reply to: N & A Management, 720 West 54th Ave., Vancouver, B.C. V6P 1M4.

BRITISH COLUMBIA — Fernie. Full-time associate required with option to buy in about a year. Contact: Dr. R.H. Campbell, Box 130, Fernie, B.C.

BRITISH COLUMBIA — Vanderhoff (Central British Columbia). Associate required with view to partnership if desired. Family oriented practice. Excellent hunting and fishing. Contact: Dr. Paul Collard, Box 1322, Vanderhoff, B.C. V0J 3A0, or phone: (604) 567-2656.

ALBERTA — Calgary. Associate required in preventive-oriented practice. Contact: Dr. J.T. Boulton, No. 7 Parkdale Cres. N.W., Calgary, Alta. T2N 3T8.

ONTARIO — Associateship available in well-established preventive practice situated in growing community of 68,000, 20 minutes from Hamilton and 1 hour from Toronto. This is a full-time position in a 3-operatory office, available late April or early May, 1978, with future partnership potential. Congenial, conscientious staff. Reply to CDA Box Number 1793.

ONTARIO — London. Associate wanted for large general practice. Practice has had an associate for 12 years. Present owner reaching retirement age, and would sell practice within two or three years. Good opportunity for someone looking to relocate. Contact: Dr. L.V. Shankman, 714 Dundas St., London, Ontario. Phone: (519) 432-1531.

ONTARIO — Ottawa. Associate wanted for established group practice (3 dentists, 1 hygienist) in modern office. Partnership will be available if philosophies compatible. Bilingual candidate would be ideal since office is located in a bilingual area. Please send application to Dr. Bertrand, Roy and Associates, 1207 Evans Blvd., Ottawa, Ont. K1H 7T6.

ONTARIO — Ottawa. Pratique de groupe établie a besoin d'un dentiste bilingue pour complèter ses cadres. Bureaux situés dans un édifice exclusivement dentaire dans une région bilingue. Possibilité de demeurer au Québec et travailler en Ontario. Veuillez addresser votre candidature à: Dr. Bertrand, Roy et Associés, 1207 Boul. Evans, Ottawa, Ont. K1H 7T6.

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BRITISH COLUMBIA — Burns Lake. Dentist wanted to practise in the Village of Burns Lake, in northern British Columbia. Office space is available in a new Medical Dental Building, constructed June '77, and would suitably accommodate one or two dentists. It is located directly across from the hospital. The doctors, presently in the building, would be willing to provide anesthetic services for the dentists, either in the clinic or the hospital. This is an ideal opportunity for a young dentist, in an expanding town, in one of the most beautiful recreational areas in British Columbia. For more details contact: Gerobeco Holdings Ltd., P.O. Box 167, Burns Lake, B.C. V0J 1E0.

BRITISH COLUMBIA — Vancouver. Periodontist. Excellent opportunity available in established periodontal practice for full-time associate leading to partnership if philosophies are compatible. Must be eligible for British Columbia specialty board examination. Please reply to CDA Box Number 1771.

BRITISH COLUMBIA — Vancouver. United Church Hospital in north central British Columbia requires a dentist for modern 5 chair clinic. This medical centre employs 2 dentists, 4 physicians and a pharmacist in a modern accredited acute-care hospital. This is a salaried position including rent-free furnished home, moving costs, annual holidays plus postgraduate plan and other fringe benefits. Contact: Dr. Don Watt, Supt. of Hospitals, 6762 Cypress St., Vancouver, B.C. V6P 5L8.

ALBERTA — Banff, Canmore or Jasper — Position opening for experienced dentist. Must be preventively-oriented and know how to use a rubber dam. Deep powder skiing, trout not biting yet! Reply to CDA Box Number 1770.

ALBERTA — Pincher Creek. Hygienist and certified intra-oral assistant needed immediately in modern three-dentist practice close to major city. Salary and benefits negotiable. All auxiliaries to get a profit share. Please reply in writing to Box 820, Pincher Creek, Alberta T0K 1W0 or Phone: (403) 627-3290.

SASKATCHEWAN — Kindersley. Dental hygienist and certified dental assistants required for a newly constructed two dentist preventive practice in Kindersley. Excellent working conditions and remuneration. Mail complete written applications to: Dr. Dana H. Bailey, 3139-18th Ave., Regina, Sask. S4T 1W8.

SASKATCHEWAN — Prince Albert. Dentist, preferably with one to two years experience, wanted for well established fully modern clinic in Prince Albert, Saskatchewan with a drawing area of 65,000 people. Known as the Gateway to the North with excellent opportunities for fishing, hunting and skiing. Perfect facilities to practise comprehensive preventive dentistry. Reply to: Dr. Mokleby's Dental Clinic, 27-11th St. West, Prince Albert, Sask. S6V 3A8.

SASKATCHEWAN — Saskatoon. University of Saskatchewan, College of Dentistry. Applications are invited for two full time positions in the Department of Oral Biology. Depending on qualifications, applicants may be considered for Chairmanship of the Department. Oral Pathology: the applicant should have a dental degree and graduate training in pathology — oral and/or general. Responsibilities will include teaching at the undergraduate level, research and managing a diagnostic biopsy service. Oral Biochemistry/Microbiology: the applicant should have a dental degree and graduate training preferably beyond the Master's level. Responsibilities will include teaching at the undergraduate level and research in biochemistry/microbiology. Rank and salary will be determined according to qualifications and experience. Letters of application and curriculum vitae should be sent to: Dr. E.R. Ambrose, Dean, College of Dentistry, University of Saskatchewan, Saskatoon, Sask. S7N 0W0.

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ONTARIO — Manitouwadge. Dentist required immediately for private practice to service a population of 3,400 persons in Manitouwadge, Ontario. Two chair equipped dental clinic, office space and housing available at reasonable rental rates. The Ontario Ministry of Health has approved Manitouwadge as an underserviced area for dentistry. Under its program an approved dentist is guaranteed a net income of $28,000.00 per annum or an Establishment of Practice Grant of $20,000.00 tax free, payable over 4 years — $7,000.00 / $5,000.00 / $3,000.00 / $3,000.00. For further details contact: E. Lyons, Chief Administrative Officer, The Corporation of the Township of Manitouwadge, Manitouwadge, Ont., or phone: (807) 826-3227.

ONTARIO — Thunder Bay. Required by the Ministry of Health, Lakehead Psychiatric Hospital. Salary $26,375-$32,825. This is an opportunity to pursue all phases of dentistry and to develop a comprehensive preventive program, providing services to psychiatric patients and to the residents of a mental retardation facility. Three general hospitals are available for surgery with one fully equipped for restorative dentistry under general anesthesia. Dental clinic facilities include two modern fully equipped operatories. One has a cox unit, Dental Eze chair on air cushion and operator and assistants' chairs for four handed dentistry; the second is equipped with a Ritter x-ray and unit and Dental Eze chair. Both have airotors, high volume suction and cavitron units. An electrosurgery unit and nuva seal light complement the two operatories. This is a challenging and satisfying position in a pleasant atmosphere working as part of a multi-disciplinary team. Location: Thunder Bay. Qualifications: Licence to practise dentistry in the Province of Ontario. Ability to plan, organize, direct and control dental services and programs. This competition is open to both men and women. Return applications to: Personnel Officer, File HL-24-01-78, Lakehead Psychiatric Hospital, P.O. Box 2930, Thunder Bay "P", Ont. P7B 5G4.

ONTARIO — Toronto. Oral surgeon wanted for busy practice in Toronto and vicinity. A knowledge of general anaesthesia essential. Send resume to CDA Box Number 1767.

NEWFOUNDLAND — Whitbourne. Locum Dental Surgeon required in May 1978 to take over thriving practice, fifty miles from St. John's, for one or two years. Owner wishes to travel. Facilities include two operatories with modern equipment, fully furnished house in fifty acre setting, excellent fishing and hunting. Remuneration negotiable. Direct inquiries to Dental Clinic, P.O. Box 98, Whitbourne, Nfld.

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NOVA SCOTIA — Isaac's Harbour. Dentist wanted. Dentist required to take over full time practice based in a new, modern, fully equipped dental clinic located in the district medical centre at Isaac's Harbour, Nova Scotia. The clinic serves fifteen communities on the beautiful eastern shore of Guysborough County. It is the only dental facility in the district — new, up to date dental accoutrements have been provided by the Nova Scotia Department of Public Health. Excellent accommodation is available in the area. Address enquiries to: Lew DeMone, Chairman, District Medical Society, Isaac's Harbour, Nova Scotia B0H 1S0.

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MEETINGS

CANADIAN ACADEMY OF PERIODONTOLOGY — Quebec Association of Periodontists, Annual Meeting May 26-28, Hotel L'Esteral (Laurentians) — Dr. Fermin Carranza. Information Dr. M. Stutman, 4141 Sherbrooke St. W., Suite 535, Montreal, Quebec H3Z 1B8.

MISCELLANEOUS

ONTARIO — Etobicoke. A complete range of office services, including personnel, management, bookkeeping, monthly financial statements and income tax returns available through our staff of bookkeepers, manager and professional accountants. Write: Physicus Management Ltd., 9 Pebblevalley Lane, Etobicoke, Ont. M9C 4X2, or phone: (416) 622-6112 or (416) 545-9680 in Hamilton, Ont.

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The Royal College of Dental Surgeons of Ontario
230 St. George Street
Toronto, Ontario M5R 2N5

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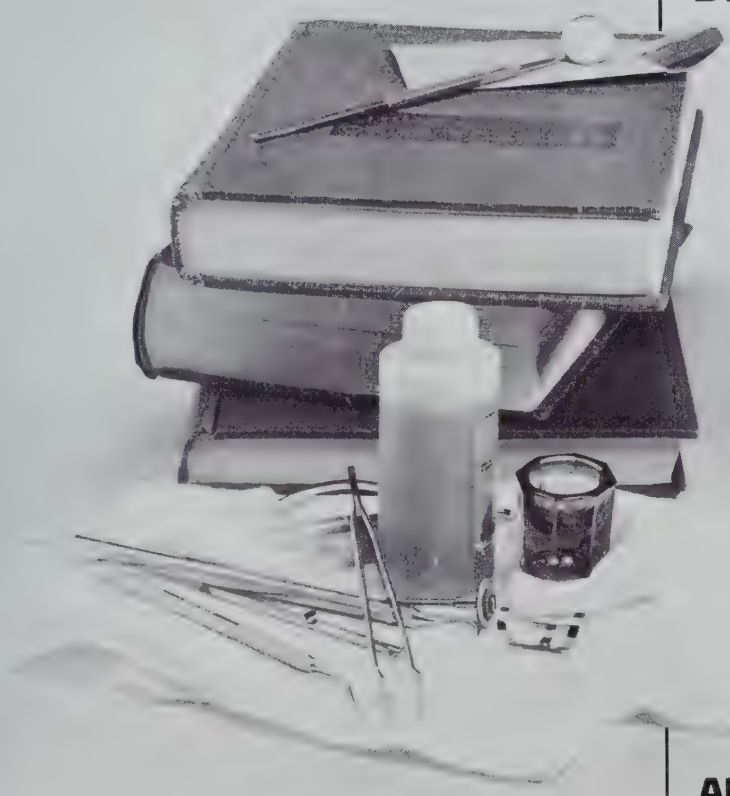

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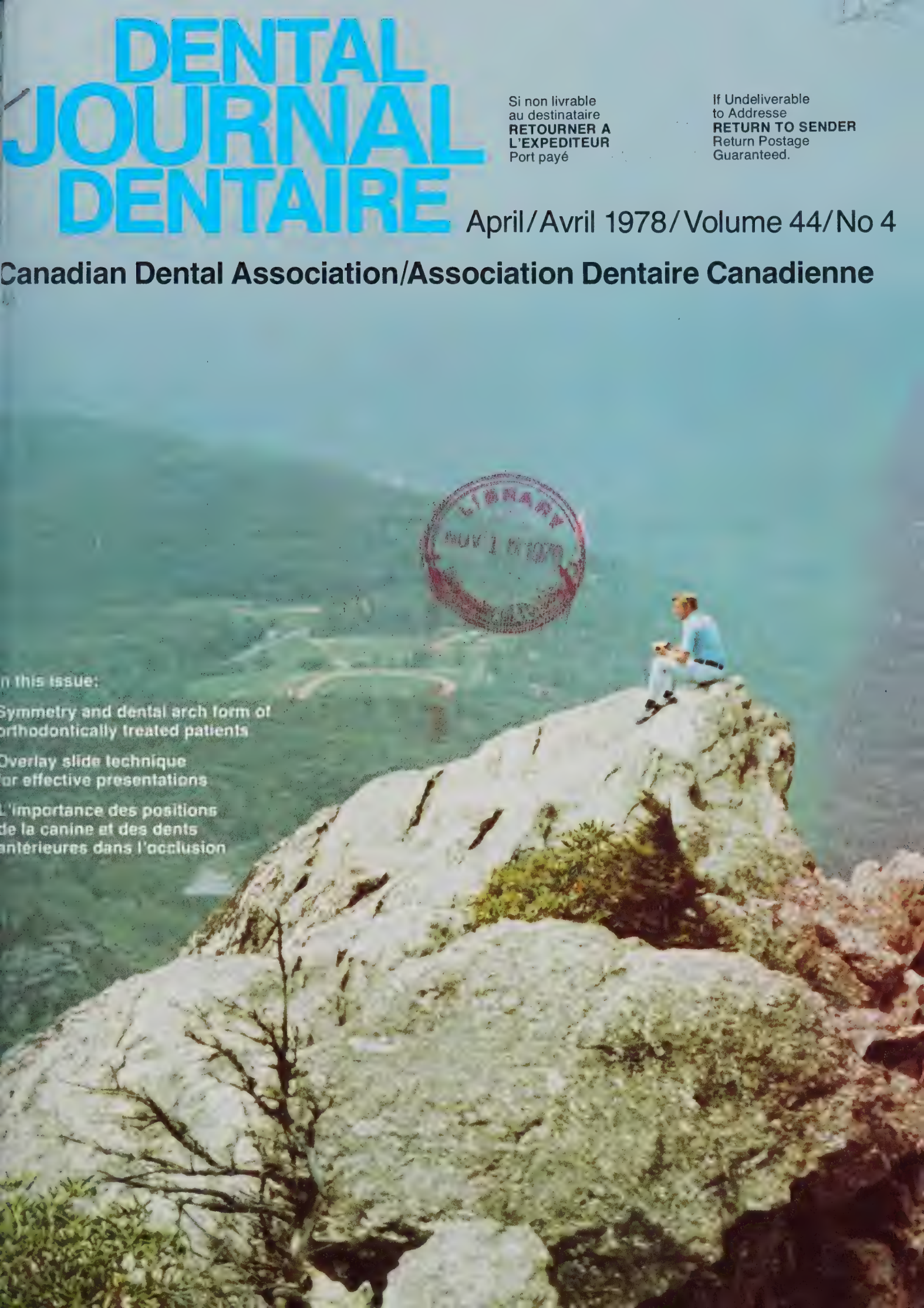

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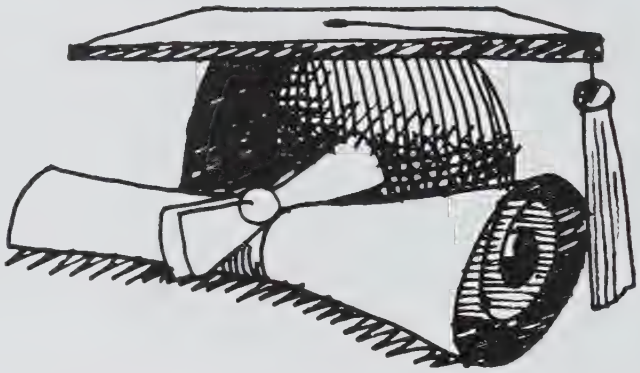

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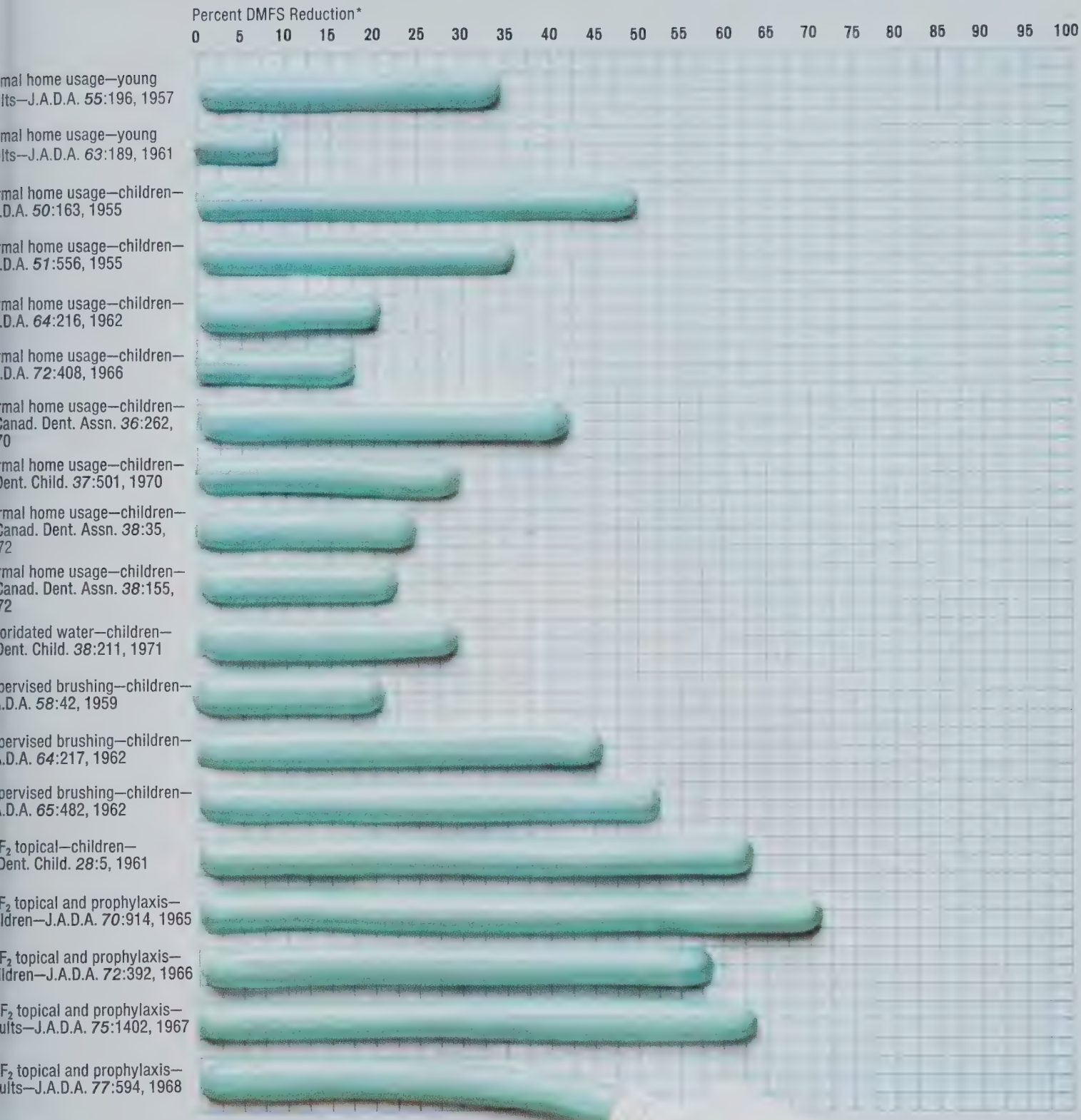

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JOURNAL of the Canadian Dental Association
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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13. Contact: Dr. Ralph Crawford, Convention Chairman, Manitoba Dental Association, 308 Kennedy Street, Winnipeg, R3B 2M6.

Canadian Meetings

Alpha Omega Dental Fraternity Ladies' 9th Annual Art Show Sale and Auction, Edwards Gardens, Toronto, April 15-16, 1978. Featuring Ken Danby, Glen Loates, A. J. Casson, G. Iskowitz, R. Letendre, N. Morrisseau, etc. Proceeds in aid of Dental Education. For information, contact: Mrs. P. Chapnick (416) 223-5478.

Ontario Dental Association and the Dental Society of the State of New York, Joint Convention, Sheraton Centre, Toronto, May 14-17, 1978. Contact: Mrs. W. C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Canadian Academy of Periodontology/Quebec Association of Periodontists, Annual Meeting, Hotel L'Esterel (Laurentians), May 26-28, 1978. Speaker, Dr. Fermin Carranza of California. Contact: Dr. M. Stutman, 4141 Sherbrooke St. West, Suite 535, Montreal, Quebec, H3Z 1B8.

Les Journées Dentaires du Québec, Quebec Hilton Hotel, Quebec City, May 28-31, 1978. Contact: Dr. R. M. Lang, 5171 Decarie Blvd., Montreal, Quebec H3W 3C2.

Alberta Dental Association Convention, Jasper, Alberta, May 28-31, 1978. Contact: Dr. G. D. Harle, #400, 10454 - 82 Avenue, Edmonton, Alberta T6E 2A1.

Fourth Canadian Cleft Palate Conference, University of Western Ontario, London, June 16-17, 1978. Contact: Dr. R. Latham, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Association of Canadian Faculties of Dentistry/L'Association des Facultés Dentaires du Canada, 10th Biennial Conference on Canadian Dental Research and Education, University of Western Ontario, London, June 19-21, 1978. The research sessions will consist of symposia on "The Tongue" and "Denture and Pulp", followed by ten 15-minute research papers presented by speakers from the dental schools. The education sessions will examine "Clinical Evaluation Systems in Canada" and "Dental Aptitude Test Programs". Accommodation for registrants is available at Delaware Hall, the same facility as the Conference. Contact: ACFD/AFDC Registration and Accommodation, Room 1003, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Atlantic Provinces Dental Convention, Charlottetown, Prince Edward Island, July 2-5, 1978. Contact: Dr. David O'Connell, 13 Green Leaf Drive, Sherwood, Prince Edward Island.

Pacific Dental Federation Convention, Vancouver, July 23-26, 1978. Contact: Dr. Ken Neuman, President, Pacific Dental Federation, 1125 West 8th Avenue, Vancouver, British Columbia V6H 3N4.

Canadian Society of Oral Surgeons, Scientific Workshop and Meeting, Winnipeg, September 8-11, 1978. Contact: Dr. Colin Foster, 521 - 233 Kennedy Street, Winnipeg, Manitoba R3C 3S5.

Canadian Academy of Oral Radiology, 1978 Annual Meeting, Winnipeg, Manitoba, September 10, 1978. Contact: Dr. C. G. Baker, Head, Section of Radiology, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Ave., Winnipeg; or, Dr. C. E. Hawrish, 5064 Dentistry Pharmacy Centre, University of Alberta, Edmonton.

Pacific Coast Society of Orthodontists, 1978 Convention, Hyatt Regency Hotel, Vancouver, British Columbia, October 1-5, 1978. Contact: Dr. J. G. Ryan, #1330 - 925 W. Georgia St., Vancouver, British Columbia V6C 1R5.

Toronto Academy of Dentistry, Annual Winter Clinic, Royal York Hotel, Toronto, November 23, 1978. Contact: Dr. R. S. McKegney, Publicity Chairman, Suite 709, 1849 Yonge Street, Toronto, Ontario M4S 1Y2.

International Meetings

California Dental Association, Scientific Session on "Quality of Life", Anaheim, California, May 5-8, 1978. Contact: Steven Badolato or Geraldine Reeve, California Dental Association, P.O. Box 91258, Los Angeles, California 90009.

Circulo Odontologico Del Sur (Southern Argentina Dental Society), Second International Congress and Third Socio-Economic Congress,

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Bahia Blanca, Argentina, May 25-28, 1978. International lecturers will deal with all clinical specialties. Contact: Dr. R.L. Ellis, Associate Professor, Department of Community Dentistry, University of Toronto, Faculty of Dentistry, 124 Edward St., Toronto, M5G 1G6.

European Orthodontic Society, 54th Congress, The Hague, Netherlands, June 4-9, 1978. Main theme: ''Stability after orthodontic treatment''. Contact: Secretariat, 54th EOS Congress, c/o Netherlands Congress Centre, P.O. Box 9000, Churchillplein 10, The Hague, The Netherlands.

Congresso da Conferacão Latino-Americana de Protesistas Dentais, Convention Hall of Anhembi Park, São Paulo, Brazil, July 8-14, 1978. Contact: X Congresso da Confederação Latino-Americana de Tecnicos Dentais, 01302 Rua da Consolacao, 2416, Sąo Paulo, Brazil.

International Symposia, commemorating the 25th anniversary of the Hebrew University - Hadassah School of Dental Medicine, Jerusalem, Israel, July 9-12, 1978. Theme: ''Future perspectives of dentistry''. Contact: Dr. Irwin Ship, U.S. Coordinator, 1611 Broad-Locust Building, Philadelphia, Pennsylvania 19102. Telephone: (215) 735-4183.

New Zealand Dental Association, 9th Biennial Conference, Christchurch, August 21-24, 1978. Contact: H.G. Knowles, Honorary Secretary NZDA Biennial Conference Committee, P.O. Box 1301, Christchurch, New Zealand.

11th International Congress of Nutrition, Rio de Janeiro, Brazil, August 22 - September 1, 1978. Contact: Dr. J.A. Campbell, Treasurer, International Union of Nutritional Sciences, 1785 Riverside Drive, Suite 2204, Ottawa, Ontario K1G 3T6.

European Meeting of Oral Pathology, Amsterdam, August 29 - September 1, 1978. An advanced course in clinical and histological oral pathology. Contact: Miss R. Mooijen, Department of Oral Pathology, Free University, De Boelelaan 1117, Amsterdam, the Netherlands.

International Association on Dentistry for the Handicapped, 4th International Congress, London, England, September 12-15, 1978. Contact: Conference Office, 4th ICDH, Dental School and Hospital, University of Birmingham, St. Chad's Queensway, Birmingham B4 6NN, England.

North Dakota Invitational Conference on Health Science Education, Grand Forks, North Dakota, September 20-21, 1978. Theme: ''Evaluation in Health Science Education''. Contact: Office of Medical Education and Evaluation, UND School of Medicine, 501 Columbia Road, Room 121, Grand Fords, North Dakota 58202.

European Association for Maxillo-Facial Surgery, 4th Congress, Venice, Italy, September 25-30, 1978. Contact: Maxillo-Facial and Stomatology Department, ''S. Bortolo'' Regional Hospital, 36100 Vicenza, Italy.

Fédération Dentaire Internationale, 66th Annual World Dental Congress, Madrid, Spain, September 25-30, 1978. Contact: Lawson, McKay Tours Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9. Telephone: (416) 364-0622.

Society for Clinical and Experimental Hypnosis, 30th Annual Meeting, Grove Park Inn, Asheville, North Carolina, October 17-22, 1978. Contact: Dr. Shirley Sanders, SCEH Convention 1978, Office of Continuing Education, University of North Carolina, 236 MacNider 202H, Chapel Hill, N.C. 27514.

Second International Prosthodontic Congress, Las Vegas Hilton Hotel, Las Vegas, Nevada, October 19-21, 1978. Contact: American Prosthodontic Society, 919 North Michigan Avenue, Suite 2108, Chicago, Illinois 60611.

Letters to the editor

AIB Forms

I and many of my colleagues have recently received a call from Ottawa with regard to filling out Anti-Inflation Board forms, 1975 to 1977. It seems they are going to every dentist, even those who graduated in June, 1977 (one of my associates), and are requesting that these forms be submitted in the next 10 days: otherwise, we are liable to a penalty of $100 per day.

Since the AIB will cease to exist in April, 1978, these forms are out of print and cannot be obtained at the Montreal Revenue Office or from the person who phoned me from Ottawa. How then can I comply with this gentleman's request?

My response was in the most polite terms I could manage after he insisted that I must fill out the forms: ''Please send me the forms and I will be happy to fill them out.''

Do you think that Ottawa will print up more forms? After all, in April, 1978, they will be useless.

At a recent meeting more than 20 of my colleagues mentioned having received this phone call. I imagine many others find themselves in this same predicament.

Just wanted to make you aware of this ''Catch 22'' in our system.

Edward B. Silver, DDS
Montreal, Quebec.

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EDITORIAL

THE PROFESSIONAL MATRIX

The relationship of the Canadian Dental Association to dental education is currently under review. More particularly, should the Canadian Dental Association sponsor the accreditation function of its Council on Education and provide the substantial funding necessary to its operation?

The history of the Canadian dental profession reveals many examples of professional leadership resulting in the establishment of dental schools and dental journals and the enactment of dental legislation, including the creation of self-regulatory agencies, as befits our status as a respected profession. Every dental school in Canada exists because, at some stage, dentists lobbied legislators for the establishment of the school. Organized dental education which results in our professional degrees is the professional womb or matrix of dentistry. Hence the factors that affect our professional embryology should be of deep concern to us all.

Throughout Canada the dental schools are integral components of universities — each of which jealously guards its academic freedom and autonomy. The profession, through the accreditation activities of the Canadian Dental Association, exerts a strong positive influence on the process of dental education. The requirements for approval of the various programs are standards that have been developed by the Council on Education and approved by the Board of Governors. Approval status awarded to a program gives the graduate credentials recognized by licensing and certifying bodies throughout Canada and the United States.

The products of the Canadian dental educational process — dentists, dental specialists and dental hygienists — are controlled by the legislators of each province through licensing mechanisms for the protection of the public. Hence there are two spheres of influence on the profession; one affects the process and the other the product. The first, control of the process, is sponsored by the voluntary profession to maintain standards of excellence in dental education. The second, the product, is regulated by the licensin authority which has been created by legislation to protec the interest of the public served. Although these two sphere of influence are not mutually exclusive they represent satisfactory balance of professional and public interest. Th role of the profession through the accreditation programs c the Canadian Dental Association is therefore a key factor i determining the character and the level of excellence of ou profession. It is here that our organized profession brings t bear its influence on what a dentist shall be. The control c the standards of dental education, through the maintenanc of a healthy accreditation system, is one of the most impor tant functions of our national dental association. The Boar of Governors of the Canadian Dental Association has gon on record (March, 1977) in the Association's commitmer to the support of this most important function.

W. H. Feasby, DDS, Dip.Paed., M.Sc., FRCD(C)
Chairman,
CDA Council on Education

BULLETIN

The pamphlet ''Mouth Protection in Contact Sports'' inserted in this issue is available in both French and English.

These pamphlets can be purchased at a cost of $6.00 per hundred from:

The Canadian Dental Association,
Bureau of Public Information,
1815 Alta Vista Drive,
Ottawa, Ontario
K1G 3Y6

mouth protection

in contact sports

as recommended by the

CANADIAN DENTAL ASSOCIATION

Injured teeth wo

Studies of sports injuries amon and young adults have shown mouth is the most commonly in of the body.

Many of these injuries have unfortunate consequences because teeth, even though they can be skillfully restored by the dentist to their original appearance, cannot heal themselves like other parts of the body. Dental injuries are therefore permanent.

If not treated, such injuries can result in the improper growth, spacing and development of remaining primary or secondary (permanent) teeth. This, in turn, may cause problems for the young person that range from shyness and embarrassment to possible speech defects.

Proper treatment for dental injuries is therefore advisable and necessary, but can be costly because of the time, work and materials involved.

The best solution is to prevent dental injuries before they happen

Many minor hockey and football league officials and advisers in Canada have recognised this fact by making mouthguards a required piece of equipment. The term "mouthguard" is used to describe various types of mouth protectors, however, and the parents or players may be confused as to what types provide the most effective protection.

There are, basically, three different types of mouthguard:

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the
rea

1 Flexible, moveable, external mug-guard—This type of external mouthguard is still the one worn by some young hockey players. Unfortunately, experience has shown that this protector, because it can be moved up and down while being worn, is often displaced during play or ends up being used as a chin-strap. In some cases injuries have occured even when a moveable 'guard was properly positioned over the mouth.

2 Rigid, fixed position, external shield/cage—This type of mouthguard is now being used widely in hockey although similar protection has been used for years by football players. In fact, some of these external shield/cages are now certified for use in hockey by the Canadian Standards Association

The difference between fixed, rigid 'guards and the flexible moveable variety is that, once the fixed 'guard has been attached to the helmet, it cannot be moved during play. It is therefore very important to make sure that this type of 'guard is properly positioned before use.

All approved face masks are secured with a three point contact, one to the face on the chin and two contacts to the helmet sides near the temples.

Although more expensive than the flexible variety, the fixed, rigid, external 'guard has been found to provide more effective protection for the player.

3 Internal, fitted, plastic mouthguard—This type of protection is worn over the teeth inside the mouth similar to mouthguards worn by boxers. In addition to offering protection against frontal blows, an internal mouthguard, when properly fitted, gives good protection against "uppercut" blows that strike the player under the chin. Such blows may cause damage to teeth, jaw joints and tongue.

There are two main types of internal mouthguards:

1. Custom-made 'guards which afford optimum protection, fitted either by a dentist in his office or at mouthguard clinics sponsored by local Dental Societies and/or Health Units.
2. Boilable 'guards sold at many sporting goods stores. Although they can be fitted in the home a limited number of times within a three-month period, they are bulky and may cause young people difficulties in speech or breathing during play. *The CDA recommends that this type of mouthguard be fitted by a dentist, in any case. Boilable mouthguards should never be fitted over braces or other oral appliances without consulting a dentist.*

The Canadian Dental Association recommends rigid, fixed position external mouthguards as the most effective single way of preventing sports injuries to the teeth, gums and tongue. When playing either football, hockey or lacrosse, both a fixed external and a fitted internal mouthguard should be worn for the most complete protection possible. Even though these mouthguards cost a bit more initially, they are still far less expensive than restoring or replacing injured teeth. *The CDA urges you to ensure that adequate head and mouth protection is a basic part of your family's sports equipment.*

It could make a difference for a lifetime.

Recommended protection for hockey

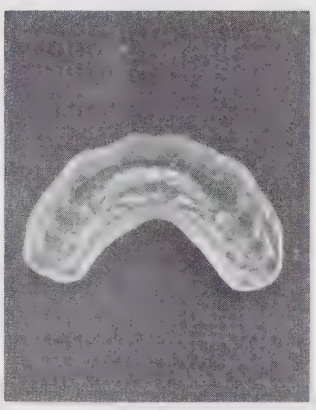
All helmets and external shield/cages are examples of those approved by the Canadian Standards Association.

External

Good protection against blows is provided by recommended external 'guards, like those shown in the above photo. These 'guards are made from a rigid, non-pliable material. They can be adjusted to fit various facial shapes and sizes but cannot be dislodged during play. The helmet to which the 'guard is attached must fit snugly, to ensure that the 'guard will remain properly positioned.

Internal

Internal 'guards also protect the player from "uppercut" blows that can damage teeth, tongue and jaw joints. For the most complete protection against dental injuries in football, hockey and lacrosse, these 'guards should be worn in conjunction with fixed, external 'guards.



Custom-made internal mouthguard.

A message to coaches and parents

Mouth protection works

Research in Canada proves that when protective mouthguards are worn, the incidence of dental injuries is greatly reduced.

Mouthguards should be worn by all players involved in hockey, football, lacrosse, soccer, rugger, basketball, and even squash, handball and raquetball.

Reminder ! !

Mouth protectors must never be tampered with, for example by paring them down. Any alterations should be made by a dentist to prevent a serious health hazard from occuring.

This material was researched, developed and originally published by the Ontario Dental Association in the interests of reducing dental sports injuries, and improving oral health.

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Delegates to the 1977 Canadian Dental Students' Conference. Front row, left ro right: James Girard, University of British Columbia; Ann Sarvari-Lawlor, University of Toronto, Conference Chairman; Linda Teteruck, CDA Director of Student Affairs; Dr. D. J. Yeo, Acting Dean, University of British Columbia; and, Robert DeWolfe, Dalhousie University. Back row, left to right: James Henderson, University of Saskatchewan; Dr. Edwin Yen, Chairman, CDA Committee on Student Affairs; James Anderson, University of Alberta; David Hurst, University of Western Ontario; Jack Gerrow, University of Toronto; Donald Neal, University of Manitoba; Gary Cousens, University of Montreal; Jean-Luc Dion, Université Laval; Richard Gilsig, McGill University; and, Dr. Ivan Hrabowsky, Practitioner, St. Catharines, Ontario.

DENTAL STUDENTS' CONFERENCE HELD IN TORONTO

The structure, responsibilities and terms of reference of the Canadian Dental Association's newly formed Council on Student Affairs was one of the key issues discussed during the 1977 Canadian Dental Students' Conference held in Toronto, November 23-26.

Ann Sarvari-Lawlor of the University of Toronto chaired the Conference which was attended by representatives of all 10 Canadian dental schools. Delegates included: James Girard, British Columbia; James Anderson, Alberta; James Henderson, Saskatchewan; Donald Neal, Manitoba; David Hurst, Western Ontario; Jack Gerrow, Toronto; Richard Gilsig, McGill; Gary Cousens, Montreal; Jean-Luc Dion, Laval; and, Robert DeWolfe, Dalhousie.

The Conference was held at the University of Toronto's Faculty of Dentistry and, as in previous years, was funded by the Canadian Fund for Dental Education through a special grant from Colgate-Palmolive Ltd. CDSC '77 was organized by CDA's Office of Student Affairs and CDA was represented by its Committee on Student Affairs: Dr. Edwin Yen, chairman; Dr. Ivan Hrabowsky, practitioner; Dr. D. J. Yeo, dental educator; and Mr. Art Worth, student governor. Linda Teteruck, director of student affairs for the Canadian Dental Association, also attended.

The opening night reception, held at the Sheraton Centre, was sponsored by the Ontario Dental Association. Delegates were cordially greeted by Dr. A. J. Harris, President of the ODA, and Mr. John Gillies, ODA Executive Director. Other dignitaries present at the reception were: Dr. Donald Rife, President of the CDA; Dr. Rod Moran, CDA President-elect; Dr. R. Evans, Past President of the ODA; Dr. E. Sonley, President of the Royal College of Dental Surgeons of Ontario; Dr. T. A. Shapero, Canadian Co-ordinator of the International Association of Dental Students; and, Mr. Murray McDonald, Executive Director of the Canadian Fund for Dental Education.

Status of full Council

Ann Sarvari-Lawlor formally opened the business sessions on Thursday morning, November 24. Following her remarks, Dr. Donald Rife addressed the delegates, explaining the importance of becoming involved in organized dentistry and the channels through which student input can be generated within the CDA. He expanded on the actions of the CDA Board of Governors over the past year in increasing the role of dental students within the Association and in upgrading their status within the organization to that of a full Council. He stressed the importance of student ideas and input to the future of CDA.

Dr. Rife explained to the delegates that the Board of Governors had created the new Council on Student Affairs as a replacement to the Committee on Student Affairs. This new Council will be comprised of students who will report directly to the CDA Executive Council and, ultimately, to the Board of Governors. The decision to create this new Council was made because the Execu-

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tive and Board felt it would provide a more direct avenue for student input into the Association. Under the previous Committee status, student input was channelled to the CDA Council on Education which voted on student motions, passed them on to the Board of Governors and, finally, to the appropriate Councils or organizations involved in the motions. Under the new Council, student input will be channelled more directly to the organizations in question.

Dr. Rife also outlined the terms of reference of the new Council on Student Affairs as designated by the Board of Governors at its March 1977 meeting and indicated that an Executive Liaison would be appointed to the Council on its formation. The terms of reference are as follows:

1. To report, at least annually, to the Board of Governors on student interests and activities.
2. To be responsible for the effective organization and conduct of the Canadian Dental Students' Conference.
3. To recommend on policies bearing on student involvement in national and international affairs.
4. To encourage and promote membership in the Association by Canadian dental students.

The remainder of Dr. Rife's presentation examined the role of the CDA as it relates to other dental organizations. He explained that the CDA was a non-authoritarian organization which issued guidelines based on a consensus of opinion of all the dental health bodies across Canada. Dental health is constitutionally a provincial matter and it is through the provincial associations that the CDA obtains its mandate. The CDA acts as a national forum for issues of national concern to the dental profession and the public. For this reason, it is important that student involvement in organized dentistry be at both the national and provincial levels.

Dr. Edwin Yen spoke to the students next, complementing Dr. Rife's address with further discussion on the responsibilities and privileges of the new Council on Student Affairs. Dr. Yen explained that the Board of Governors had delineated that the Council be comprised of five students — the student governor, the CDSC chairman, and three student nominees from CDSC.

Dr. Yen concluded his presentation with a review of the report of the Committee on Student Affairs to the May, 1977, meeting of the Council on Education and a synopsis of the actions of Council on the various items in the report.

The next speaker on the Thursday agenda was Mr. Les Jones, President of Amalgamated Dental. The theme of his presentation was the interlocking and reciprocal relationship between the dental trade and the profession. He outlined many areas of research undertaken by the dental trade over the last 50 years and the progress made in all areas of dental technology. He also expanded on areas of future development.

National Dental Examining Board

Dr. E. Sonley of the National Dental Examining Board spoke to delegates on the functions and activities of the NDEB. He pointed out that the NDEB is very dependent on the fact that all faculties of dentistry in Canada are accredited by the CDA and noted that, without accreditation, there would be no certificate of portability. He stated that, in his opinion, there is a need to expand the accreditation program.

Commenting on the financial position of the NDEB at the present time, Dr. Sonley informed the students that the NDEB is working on a deficit budget. He also stated that the monies received from graduating students is the major support of the NDEB.

Following Dr. Sonley's presentation, the student delegates expressed the desire to maintain close liaison between the NDEB and the new Council on Student Affairs and to obtain as much information as possible about the NDEB to be distributed at the time of the annual CDA membership campaign. A motion was passed requesting the NDEB to provide an informative booklet on its structure, function and activities to be supplied along with the CDA student membership materials sent to each dental student in September of each year.

Reports of representatives

Mr. Art Worth, the 1977 CDA student governor, presented a report on the activities of the Board of Governors during 1977 as they relate to student interests and concerns and Mr. David Campbell, CDSC '76 representative, reported on the 1977 CDA/ACFD Teaching Conference.

Dr. T. A. Shapero, Canadian Coordinator of the International Association of Dental Students, addressed delegates on the activities of the IADS and the highlights of past international congresses. He stressed the need to establish IADS liaison at all dental faculties to inform students of the various endeavours of the IADS, i.e. its exchange programs, its essay contest, its projects in underdeveloped countries, etc.

In response to Dr. Shapero's presentation, the following motion was passed: "That each of the delegates to CDSC promote the IADS functions and activities at their respective university" and "that each delegate be encouraged to promote the formation of a local IADS officer at his school".

Student Table Clinic Program

On Friday, November 25, Mr. Paul Belzycki opened the business sessions with a report on the 1977 Student Table Clinic Program. Mr. Belzycki of the University of Toronto presented a table clinic during the FDI Congress and reported that, generally, the 1977 program was a success. He pointed out that the table clinics in 1977 were non-competitive as recommended by the CDSC '76 delegates.

Mr. Belzycki's comments prompted discussion among the delegates of the method of selection of student clinicians at the various faculties. At some schools there is a competition to select the student clinician and at others the clinician is appointed by the Dean or a member of the faculty. In view of this, the delegates passed the following motion: "That CDSC '77 promote the table clinics at the local level and

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encourage competitive selection of table clinicians at the individual school level but reaffirm its opposition to competition at the national level.''

Insurance programs

Mr. Ray Davis, a representative of Employee Facts, a promotional organization working with Canadian Dental Service Plans Inc., discussed the new insurance plans now being offered to all members of the dental profession. He outlined the insurance hazards facing the new dentist — death, disability, damage, liability — and the nine new insurance plans being offered by CDSPI to deal with these hazards. He also covered the new rates and proposals in the areas of life insurance, disability insurance, residual disability insurance, office overhead and office contents insurance, co-insurance programs, etc.

Student delegates also had the opportunity to hear Dr. Rod Moran, CDA President-elect, speak on the graduate insurance package presently being offered to Canadian dental graduates. This package is comprised of: $20,000 basic life insurance; $600 per month long term disability insurance; $500 per month office overhead; $500 per month for 12 months under the Adjustment Income Dollar Plan; and $500,000 malpractice insurance. (There is no malpractice insurance being offered to graduates in Ontario since this is covered with their license fee.)

Dr. Moran informed the students that the graduate insurance package costs $60,000 a year to finance and these costs are basically absorbed by dentists who purchase insurance. The intent of the graduate package is to encourage new graduates to adopt the plans, Dr. Moran noted, but recent statistics are disappointing. He warned that if new graduates do not support the program it could fold and urged the student representatives to carry this information back to their schools and promote the graduate package to their graduating class.

The delegates also examined the insurance presently available to undergraduate students — $5,000 term life insurance coverage, as well as Blue Cross Extended Health Care and Registered Retirement Savings contributions to a maximum of $5,500 per year. The consensus was that a greater variety of insurance could be available to the undergraduate and the following resolution was passed: ''That CDSC '77 request the Council on Student Affairs to request the CDA Council on Insurance and Investment to investigate the development and implementation of undergraduate benefits in the areas of: 1)dismemberment insurance; and, 2) sickness or accident insurance (to provide funds for a student who has to repeat a year in dental school due to sickness or accident).''

Following discussion on the subject of insurance, Mr. Bud Bower addressed the students on the history and current activities of the Canadian Fund for Dental Education. He outlined the various student related projects in which CFDE is involved, including the Canadian Dental Students' Conference, the CDA Student Table Clinic Program, student fellowships, and annual grants to each dental school to be used as designated by the Dean. In recognition of CSDC '77's appreciation of CFDE support for Canadian dental students, the delegates passed this resolution: ''That all representatives of CDSC promote donations to CFDE from their respective graduating classes.''

Student membership campaigns

The CDA student membership campaigns conducted in the various dental schools were examined and the consensus was that these had been successful. The delegates expressed a special vote of thanks to the Canadian Dental Association for sponsoring the series of ''Welcome to the Profession'' receptions at faculties across Canada. It was agreed that these receptions had been well received by students and had succeeded in encouraging interest and participation in the Association.

Summer internship programs and the high cost of dental education across Canada were also discussed during the Conference. Summer internship programs for students between their third and fourth years of dental study are presently available to students in British Columbia, Alberta and Saskatchewan, and it was the consensus of CDSC '77 that the extension of such programs to all provinces would be beneficial to the profession and the community as well as to Canadian dental students. A motion was passed calling for the Council on Student Affairs to seek the support of the CDA and its Councils regarding the implementation of this type of program in other provinces.

The delegates expressed their concern over the high cost of dental education and the competency of the present provincial student aid system. They noted that the dental professional in some provinces is in danger of becoming restricted to those more financially able to accept the costs and passed a motion requesting the Council on Student Affairs to investigate these problems and provide recommendations for their solution.

Donald Neal of the University of Manitoba was elected chairman for the 1978 Conference to be held in Winnipeg. Other officers elected were: Gary Cousens of the University of Montreal, CDA student governor; James Girard of the University of British Columbia, student representative to the Council on Education; Richard Gilsig of McGill University, student representative to the Teaching Conference; and, Jack Gerrow of the University of Toronto, student representative to the National Dental Examining Board.

ONTARIO SOCIETY OF PUBLIC HEALTH DENTISTS

The Ontario Society of Public Health Dentists recently announced its new slate of officers for the 1978 term of office. Members of the executive are: Allan Wu, Ottawa, president; Terry Hicks, Sudbury, vice-president; Neil Farrell, London, secretary; and, Arthur Steuermann, Toronto, treasurer.

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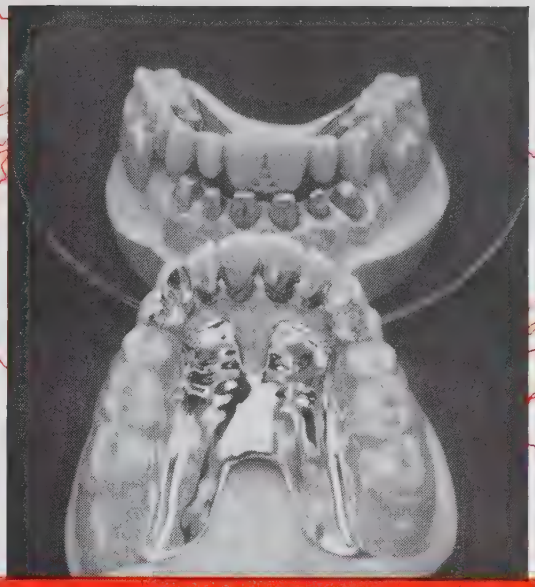

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DENTISTRY EXPERTS MEET IN OTTAWA

Considerable progress in the international standards work for dentistry was recorded in 1977. This was reflected in the publication by the International Organization for Standardization (ISO) of 10 new or revised standards in the dental field. Details of these new developments were laid before a plenary session of ISO's technical committee 106 (TC 106), held in Ottawa late last year.

Forty-one experts in the field of dentistry from 12 countries attended the international meeting. Canadian participation in the work of the ISO is sponsored by the Standards Council of Canada, the national organization responsible for the co-ordination of standards activities in Canada.

The meeting of TC106 represented the culmination of intensive meetings during the week of task groups and working groups of the technical committee, as well as of joint Fédération Dentaire Internationale/ISO working groups involving some 80 experts.

The secretariat of the joint FDI/ISO working groups reported that several of the groups have essentially completed their assigned tasks and are either disbanded or have had their work transferred to FDI or one of the working groups of TC 106. They pointed out, however, that drafts in the final stages of development will be voted on by the experts within the groups and processed to the appropriate International Organization.

Canada holds the Secretariat for Working Group 1 — Filling Materials, whose work has recently expanded to become a major factor in the technical committee's work.

A draft international standard on dental porcelain powders and casting gold alloys from Working Group 2 and a number of new definitions from Working Group 3 are to be submitted to their respective members for voting. Working Group 4 was at this stage when they submitted a draft under ballot on burs and the numbering system for rotary instruments to all members of ISO.

A draft for the classification of dental equipment prepared by Working Group 5 was submitted for final acceptance by the ISO Council and as a result WG 5 has been disbanded. It was also reported that Working Group 6 is proceeding with its work on the lighting requirements for dental surgery, the dental patient's chair and the dentist's stool.

An important development at the session was the approval of a new working group, number seven, assigned with preparing a standard for toothbrushes. The United Kingdom will be undertaking the secretariat responsibilities for this group.

This session represented Canada's first experience in hosting a meeting of this particular technical committee during the ten years that it has been involved in its work. Dr. D. C. Smith, of the Faculty of Dentistry of the University of Toronto, was head of the Canadian delegation to TC 106 and was in charge of the arrangements for the meeting.

WRIGLEY CO. SPONSORS TRAVEL AWARDS TO DENTAL STUDENTS

Dr. George S. Beagrie, President of the International Association for Dental Research, recently announced that the William Wrigley Jr. Company had generously contributed a sum of money to enable selected undergraduate dental students to attend annual meetings of IADR, the award to be named the IADR/FDI Travel Grant.

This year $1600 was made available to provide $400 to each of four dental students from Canada to attend the meeting in Washington, March 16-19. The Canadian Division of IADR was asked to select the four students. In the absence of objective criteria for this task, the Canadian Division decided that this year four dental schools would be selected at random and their deans asked to each nominate a worthy student.

The awardees for this year were Kirk Bartlett, Wayne Chou, Henri Laliberté and Louis Ross-Pelletier. Mr. Bartlett is a third year dental student at the University of Saskatchewan who has worked with Dr. Komiyama on a project to identify bacteria and fungi responsible for contaminating the water lines of dental units. Mr. Chou, a third year dental student at the University of British Columbia, is vice-president of the Dental Undergraduate Society and, as the winner of the Table Clinic Competition at the Faculty in January, will also represent the University of British Columbia by presenting a table clinic at the annual meeting of the Canadian Dental Association in Winnipeg in September.

Mrs. Ross-Pelletier is a senior dental student at the Université de Montréal. Holder of a baccalaureate degree in Education, she was a teacher before entering dentistry. Interested in the preventive aspects of dentistry, she is contemplating an academic career in that field.

Mr. Henri Laliberté, also a senior dental student, is at Laval University. Prior to studying dentistry, he studied microbiology for two years. He has also been involved in a research project on human genetics and medical biophysics and has an active interest in clinical research.

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annual report 1977 rapport annuel

chairman's comments

This statement introduces to you the third and final report prepared during my term as Chairman of the Board of Trustees.

1977 has been an interesting and satisfying year in many respects. On the monetary side, it has established a record high revenue of over $230,000, a 22% increase over 1976. A record amount of support has been provided for 13 continuing and/or new projects. Details of revenues and expenditures are contained in the following pages to which your attention is directed.

The Trustees have always been concerned about the overhead costs of our operation. On a day-to-day basis, the Fund's business is conducted by two long-time and dedicated staff members whose salaries have had to be adjusted annually. These adjustments have been minimal, have paid insufficient attention to meritorious past performance and have not, in fact, kept pace with rising living costs. Staff benefits have also been kept to a minimum and the ten Trustees serve without stipend. In the past year we have compared our fund raising, management and fund distribution expenses with those of similar agencies. The analysis puts us in a favourable position (i.e., with lower costs than many of our contemporaries). Then, too, there is a sort of arithmetic factor at work. If, for example, annual contributions were doubled using present methods, the costs of generating that extra amount would rise relatively little; e.g., in 1977 our income rose by over 22%, whereas total overhead costs increased by only 6%. Nevertheless and despite all this, overhead costs will and should remain a constant and proper concern of all interested parties.

It has been suggested recently that we embark on a campaign to encourage members of the profession and others interested in promoting good dental health to include bequests to the Fund in their estate planning. As a result, there may be more information circulated on this sometimes sensitive subject in the next year or so.

The Board of Trustees has also received suggestions that its membership should be increased to reflect the interests of groups not presently represented and also to make easier the selection of a Chairman. These questions will be receiving our serious consideration at our forthcoming annual meeting.

In the view of some, the most significant event of the year has been an easing of the tensions which developed earlier between the CDA Board of Governors and the CFDE Board of Trustees. I submit that there has been a distinct improvement in this area and furthermore that the improvement has emanated in large part from the deliberations of a joint CDA–CFDE Ad Hoc Committee which met on two occasions in 1977. This six-member Committee identified several problems and suggested how each organization could best resolve them. While the discussions did not produce a unanimity of opinion on all points, there is no question that considerable progress has been made. Informal liaison of a similar nature will be maintained in 1978 with, it is hoped, mutually beneficial results.

I am pleased to report that in December 1977 CDA was able to retire the $300,000 second mortgage held by the Fund on the Association's new headquarters building in Ottawa. The Trustees herewith record their satisfaction with the action of the Governors and we coincidentally congratulate the CDA for making the mortgage retirement a reality long before this was thought possible and without, it should be added, any pressure from CFDE to do so. The $300,000 repaid by CDA is now invested temporarily in trust certificates earning interest at 7.375%. A decision as to the best long-term investment for these capital funds will be made by the Trustees at their annual meeting in April 1978. They will, of course, keep in mind the limitations of the Deed of Trust and the need to produce maximum income for the benefit of dentistry. You will receive further communication on this important matter as soon as possible after the annual meeting.

I would be remiss if in this, my last report, I did not pay tribute to the many people who have made my three-year tenure of office a worthwhile experience. In particular and mentioning only those directly associated with CFDE activities, I extend my thanks to Ingrid Kleysteuber, the Secretary to the Fund; Murray McDonald, its Executive Director; the members of our Advisory Committee on Fellowship Selection; my fellow Trustees; and the hundreds of individual and corporate donors from the dental profession, the dental auxiliaries and the dental trades as well as foundations, business and industry. Without this sort of cooperation, understanding and financial assistance, my role as Chairman would have been a consistently uncongenial one. Because of these altruistic and unselfish attitudes on the part of others, I shall long remain one of the Fund's most appreciative and indebted beneficiaries as well as one of its most interested continuing supporters.

J. W. Neilson, D.D.S.

quelques remarques du président

J'ai l'honneur de vous présenter, au moyen de cette communication, le troisième et dernier rapport de mon mandat à titre de président du Conseil des fiduciaires.

L'année 1977 se reflète par des activités dynamiques et rentables. Du côté finances, des revenus dépassant $230.000 battaient tous les records et constituaient une augmentation de 22% en regard de ceux de 1976. Nous avons pu fournir un appui record à 13 projets, nouveaux ou existants. L'analyse des revenus et dépenses figure aux pages suivantes et nous y attirons l'attention du lecteur.

Les fiduciaires se préoccupent toujours des frais d'administration de l'organisme. Sur la base quotidienne, les affaires du Fonds sont gérées par deux personnes dévouées, employées du FCED depuis longtemps et dont les salaires ont dû être ajustés tous les ans. Il ne s'agit là que d'augmentations minimes, qui ne tiennent nullement compte des réalisations méritoires de ces employés et qui ne sont aucunement conformes à la poussée inflationniste du coût de la vie. Les avantages sociaux versés au personnel sont également minimes et les dix fiduciaires siègent au Conseil sans traitement. Cette dernière année, nous avons comparé les frais afférents à nos campagnes de souscription de fonds, à notre administration et à la distribution de nos fonds avec ceux d'organismes semblables. Nous nous situons en position favorable, révèle cette analyse, car nos frais sont inférieurs à ceux d'un grand nombre des organismes connexes. Il y a également un certain facteur arithmétique en jeu. Si, par exemple, les dons annuels doublaient grâce à l'emploi des méthodes actuelles, les coûts destinés à produire cette augmentation ne s'éleveraient que relativement peu; par exemple, en 1977, nos revenus se sont amplifiés de plus de 22%, tandis que nos frais généraux n'ont augmenté que de 6%. Malgré ceci, les parties intéressées ne peuvent se permettre de ne toujours situer en priorité la question des frais généraux.

L'on nous a suggéré récemment de lancer une campagne en vue d'encourager les dentistes et autres personnes intéressées à la promotion de la santé dentaire, à faire un legs au bénéfice du Fonds lors de la planification de leurs dispositions testamentaires. En conséquence, nous publierons peut-être au cours de l'année prochaine davantage de renseignements sur ce point parfois sensible.

L'on a également suggéré au Conseil des fiduciaires d'augmenter le nombre de ses membres, afin de refléter les intérêts de groupes actuellement non représentés; ceci faciliterait aussi la sélection d'un président. Nous étudierons sérieusement ces recommandations lors de notre prochaine assemblée annuelle.

Pour certains, le progrès le plus important fait cette année a été la détente de la tension qui existait auparavant entre le Bureau des gouverneurs de l'ADC et le Conseil des fiduciaires du FCED. Je désire souligner qu'il y a eu une grande amélioration à cet égard et, également que cette détente provient surtout des entretiens qui ont eu lieu lors de deux réunions tenues en 1977 par un comité ad hoc conjoint ADC/FCED. Le comité, composé de six membres, a pu identifier plusieurs problèmes et a fait certaines recommandations aux deux organismes en vue de les résoudre. Bien que ces discussions n'aient pas abouti à l'unanimité sur toutes les questions, on ne peut douter que d'importants progrès ont été réalisés. Ce genre de liaison non-officielle sera maintenue en 1978, et nous espérons que les résultats qui en découleront seront avantageux pour tous les intéressés.

C'est avec plaisir que je vous signale qu'en décembre 1977, l'ADC fut en mesure d'éteindre la deuxième hypothèque s'élevant à $300.000, détenue par le Fonds sur le nouvel immeuble du siège social de l'Association à Ottawa. Les fiduciaires désirent exprimer, par la présente, leur satisfaction vis-à-vis de la manière d'agir des gouverneurs et nous félicitons l'ADC pour avoir éteint cette hypothèque longtemps avant que l'on ne pensait que ce soit possible et sans aucune pression de la part du FCED. Cette somme est maintenant investie temporairement en certificats fiduciaires, à l'intérêt de 7,375%. Au cours de l'assemblée annuelle prévue pour le mois d'avril 1978, les fiduciaires choisiront un investissement à long-terme judicieux pour ces capitaux, tenant compte des restrictions imposées par l'acte de fiducie ainsi que de la nécéssité de faire produire à cet argent un revenu maximal pour le compte de la profession dentaire. Dès que possible après l'assemblée annuelle, nous vous ferons parvenir des renseignements supplémentaires portant sur cette importante question.

Il s'agirait de négligence de ma part si je ne saisissais l'occasion pour rendre hommage aux nombreuses personnes grâce auxquelles mon mandat à titre de président a été pour moi une expérience des plus valables. Pour ne nommer que ceux qui sont directement associés aux activités du FCED, je désire particulièrement remercier Ingrid Kleysteuber, secrétaire du Fonds; Murray McDonald, directeur exécutif; les membres du comité consultatif sur le choix des boursiers; mes collègues fiduciaires; et les centaines de personnes, de compagnies, les dentistes, les auxiliaires, les industries de fournitures dentaires, les fondations, le commerce et l'industrie, qui ont tous contribué au Fonds. Sans cette coopération, cette compréhension et cet appui financier, mon rôle eut été très ingrat. Grâce à l'attitude généreuse et altruiste de mes collaborateurs, je resterai, à l'avenir, l'un des bénéficiaires les plus reconnaissants et élogieux du Fonds, ainsi que l'un de ses défenseurs les plus enthousiastes.

J. W. Neilson, D.D.S.

1977 - a record year in helping to build a stronger dental profession

In 1977, CFDE supplied over $150,000 in urgently needed assistance for continuing and new programs, all aimed at building a stronger dental profession. This was a new record and 22% more than in any previous year. All told the Fund has now made grants and awards of well over half a million dollars for the benefit of dentistry.

The foregoing record level of help was, of course, made possible by a corresponding 22% increase in income. For the second straight year personal contributions from the dental profession were the Fund's largest single source of income. They also reached an all-time high and were 8% more than in 1976, our previous best year. Major factors were a sharp rise of 21% in the number of honour members and gifts from 227 new supporters. Gifts from dental organizations also moved ahead – by 11%.

This tangible leadership by the profession undoubtedly helped attract increased contributions from both foundations and business and industry.

In 1976 the Crown and Bridge Study Club of the Toronto Academy of Dentistry established an endowment fund with an initial gift of $5,000 and made a further contribution of $3,000 in 1977. Annual earnings from this $8,000 endowment fund are for the unrestricted use of the CFDE Trustees in their efforts to advance dental education.

There can be little doubt that one of the most highly significant factors which bears upon societal regard for, or response to, any vocational or professional calling, is the educational preparation of its members.

Wesley J. Dunn, D.D.S., President
Association of Canadian Faculties of Dentistry

dental teachers

From the time of its establishment fifteen years ago, the Fund's main thrust has been to provide individual training grants to potential teachers/researchers for Canada's ten dental schools. During the past summer and in order to evaluate the impact of these grants to date, a survey was conducted of the subsequent careers of all fellowship recipients.

As of 1977, fifty-nine former CFDE fellowship recipients were teaching in Canadian dental schools, thirty-eight full-time, seven half-time and fourteen part-time. Among the foregoing teachers at least twenty have senior responsibilities for their clinical discipline in their respective institution. Many others have recently completed training and will attain senior appointments in the next decade.

There are only two living trainees who are delinquent in the sense of (a) not having fulfilled their teaching/research commitment, or (b) not having repaid their grant in aid to the Fund. The amount of money involved is $6,000 which is approximately 1% of the total expended on this program since its inception. Repeated efforts have been made to secure repayment. These efforts have been intensified in recent months and will be continued.

All in all though, the Trustees believe that the record is an impressive one and that the fellowship plan has been eminently successful in achieving its objectives thus far. One can easily postulate that the personnel situation in Canadian dental education and research would now be much more precarious were it not for our contributors' tangible support over the past fifteen years.

graduate and undergraduate accreditation programs

The Canadian Dental Association through its Council on Education has for some years engaged in an accreditation project covering educational programs including undergraduate, post-graduate and graduate programs in dentistry, programs in dental hygiene and dental assisting courses. The survey teams made up of different educators and practitioners, with the exception of the Chairman, served without honoraria.

In 1973 it was decided that greater uniformity in the appraisal system could be achieved if a coordinator was employed to serve as Chairman of all survey teams.

With the assistance of a generous three-year grant of 42,900 from the W. K. Kellogg Foundation, CFDE was able o help CDA underwrite the additional cost of the program uring 1974–1976.

This new approach to accreditation surveys proved to be n outstanding success, and although the Kellogg funds ere exhausted, the CFDE Trustees were pleased to approve n award of $21,000 from general funds to assist CDA in ontinuing this essential program in 1977.

ental research

the dental profession is to continue its advances in echnology and techniques, CFDE must do its part by llocating more financial support to research and service.

In 1975, with CFDE acting as the sponsoring institution, ne Directors of the Hospital for Sick Children Foundation pproved an application of $18,535 for funding a research roject at the University of Toronto under the direction of rofessor D. C. Smith.

Purpose of the project is to contribute to an improved linical treatment in children following fracture or osteotomy of the jaws. It is anticipated that the results of this research will be of immediate clinical benefit in the treatment of congenital malformations and mandibular fractures. It has been estimated that at least 500 such operations are performed per annum in Toronto alone. This study is also basic to the use of mandibular implants.

In 1977, the Hospital for Sick Children Foundation approved additional grants totalling $46,488. Of this amount $28,000 was expended in 1977 with the balance to be used for the continuation of the project in 1978.

CFDE fosters research in every dental school in Canada. It does so by funding a Biennial Conference on Dental Research and Education sponsored by CDA and ACFD and attended by researchers and teachers from each dental faculty.

These conferences provide an outstanding forum not only for interaction between researcher and researcher, but also very importantly between researcher and teacher. Important because it is the dental teacher who has the greatest opportunity to impart to his or her students the latest information from those engaged in the basic attack on dental disease.

Your contributions help to create a stronger dental profession in many ways and thus ensure a constantly improving level of dental health care. All areas of CFDE assistance in 1977 are listed on the following pages.

grants already approved for 1978 funding

Project	*Sponsoring Agency*
10th Biennial Conference on Dental Research and Education	CDA / ACFD
Teaching Conference on Hospital Dentistry	CDA / ACFD
Student Table Clinic Program	CDA / CFDE

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1977 - une année record pour le renforcement de la profession dentaire

En 1977, le FCED a contribué des fonds de l'ordre de quelque $150.000; cette assistance était essentielle à la réalisation de programmes nouveaux et anciens, destinés à renforcer la profession. Il s'agit là d'un nouveau record car cette somme dépasse de 22% l'appui que le FCED a été en mesure d'offrir au cours de n'importe quelle année précédente. En tout, le Fonds a accordé jusqu'à maintenant des subventions et des dons s'élevant à plus d'un demi-million au bénéfice de la profession .

C'est, bien entendu, l'augmentation correspondante des revenus (22%) qui a rendu possible cet appui record. Pour la deuxième année de suite, les dons personnels provenant de la profession dentaire constituaient pour le Fonds la plus grande source individuelle de revenus. Ces mêmes dons ont également battu tous les records précédents, car ils dépassaient de 8% ceux de 1976, la meilleure année avant 1977. Les principaux facteurs contribuant à cette hausse étaient la forte augmentation (21%) du nombre de membres d'honneur, ainsi que les nombreuses contributions provenant de 227 nouveaux donateurs. Les dons provenant des organismes dentaires s'amplifiaient également de 11%.

Le fait que la profession se situe ainsi, de façon tangible, en tête de file a sans doute influé considérablement sur l'augmentation des dons offerts par les fondations ainsi que les entreprises commerciales et l'industrie.

En 1976, le "Club d'étude des couronnes et des ponts" de l'Académie dentaire de Toronto (Crown and Bridge Study Club of the Toronto Academy of Dentistry) a créé un fonds de dotation à l'aide d'une contribution initiale de $5.000 qui a été suivie d'un don supplémentaire de $3.000 en 1977. Le revenu annuel en provenance de ce fonds de dotation de $8.000 constitue pour les fiduciaires du FCED une ressource financière dont ils peuvent disposer comme ils jugent bon, pour l'avancement de la profession dentaire.

L'on ne peut douter que l'un des facteurs primordiaux qui joue sur la considération de la société vis-à-vis de toute vocation professionnelle, est la formation de ses membres.

Wesley J. Dunn, D.D.S., Président
Association des Facultés Dentaires du Canada

enseignants dentaires

A partir du jour de sa création il y a une quinzaine d'années, le Fonds a toujours dirigé tous ses efforts vers l'octroi de bourses individuelles de formation aux enseignants et aux chercheurs éventuels des dix écoles de médecine dentaire du Canada. Au cours de l'été dernier, en vue d'évaluer les résultats obtenus jusqu'à présent par ces bourses, une enquête a été effectuée sur les carrières subséquentes poursuivies par les bénéficiaires desdites bourses.

En 1977, cinquante-neuf anciens bénéficiaires de bourses du FCED enseignaient aux facultés canadiennes, trente-huit à plein temps, sept à mi-temps et quatorze à temps partiel. Au moins vingt de ces enseignants occupent des postes de niveau supérieur dans leur discipline clinique. De nombreux autres bénéficiaires ayant récemment terminé leur formation obtiendront des postes de niveau supérieur au cours de la prochaine décennie.

Seuls deux des bénéficiaires du Fonds se sont comportés de façon délinquante et (a) ils n'ont pas effectué les travaux d'enseignement ou de recherches auxquels ils s'étaient engagés (b) ils n'ont pas remboursé la bourse qu'ils avaient obtenue. La somme dont il s'agit est de l'ordre de $6.000, ce qui représente environ 1% du total consacré au programme depuis ses débuts. Nous avons fait tout notre possible obtenir le remboursement de la somme en question et nous avons intensifié ces derniers mois, nos efforts à cette fin; nous avons l'intention de redoubler nos efforts à l'avenir.

Toutefois, dans une perspective d'ensemble, les fiduciaires estiment que les résultats sont impressionnants et que le programme d'octroi de bourses a été couronné de succès retentissant en ce qui concerne la réalisation de ses objectifs jusqu'à présent. L'on peut facilement déclarer que la place qu'occupent l'enseignement et la recherche dentaires aujourd'hui au Canada serait beaucoup plus précaire sans l'appui concret des nombreux donateurs ces quinze dernières années.

programme d'accréditation pour les diplomés et les étudiants

Par l'entremise de son Conseil sur l'éducation, l'ADC a, depuis quelques années, réalisé un projet d'accréditation qui comprend des programmes éducatifs aux niveaux universitaires, post-universitaires et diplômés ainsi que des cours destinés aux hygiénistes et aux assistantes dentaires. Les équipes d'enquête, composées d'enseignants et de praticiens ont, à l'exception du président, offert leurs services sans honoraires.

En 1973, il fut décidé que l'on pourrait établir une plus grande uniformité du système d'évaluation si l'on employait un coordonnateur qui servirait à titre de président de toutes les équipes d'enquête.

A l'aide d'une généreuse subvention de l'ordre de $42.900, accordée par la Fondation W. K. Kellogg sur une période de trois années, le FCED a pu fournir à l'ADC une somme équivalente au coût supplémentaire du programme pour les années 1974, 75 et 76.

Cette nouvelle manière d'effectuer les enquêtes d'accréditation a été couronnée d'un grand succès et bien que les fonds offerts par Kellogg soient épuisés, les fiduciaires du FCED ont approuvé l'octroi de $21.000 provenant des fonds généraux en vue d'aider l'ADC à poursuivre cet important programme en 1977.

recherche dentaire

En vue de permettre à la profession dentaire de continuer à faire des progrès technologiques et techniques, il revient au FCED de consacrer un plus grand appui financier à la recherche et au service.

En 1975, à l'aide de subventions du FCED, les directeurs de la Fondation de l'Hôpital des enfants malades ont approuvé une demande de $18.535, somme destinée au financement d'un projet de recherche à l'Université de Toronto qui avait été entrepris sous la direction du professeur D. C. Smith.

Le but du projet était l'amélioration du traitement clinique d'enfants ayant subi une fracture ou une ostéotomie de la mâchoire. L'on prévoit que les résultats de cette recherche avanceront dans l'immédiat le traitement de malformations congénitales et de fractures mandibulaires. L'on estime qu'au moins 500 opérations de ce genre sont exécutées tous les ans à Toronto. Cette étude est également essentielle pour l'exécution d'implants mandibulaires.

En 1977, la Fondation de l'Hôpital des enfants malades a approuvé des subventions supplémentaires de l'ordre de $46.488. Sur ce total, $28.000 étaient déboursés en 1977 et le reste sera consacré à la continuation du projet en 1978.

Le FCED appuie la recherche dans toutes les écoles de médecine dentaire du Canada à l'aide du financement d'une conférence biennale sur la recherche et l'enseignement dentaires, parrainée par l'ADC et l'AFDC, à laquelle assistent les chercheurs ainsi que les enseignants de toutes les facultés dentaires.

Ces conférences offrent l'occasion exceptionnelle aux chercheurs non seulement de s'entretenir entre eux mais également de converser avec les enseignants. Ces discussions entre chercheurs et enseignants sont de première importance, car ce sont les enseignants qui ont vraiment l'occasion de communiquer à leurs étudiants les derniers résultats obtenus par ceux qui s'attaquent directement à la maladie dentaire.

Grâce à vos dons, la profession dentaire a acquis une solidité promouvant l'amélioration constante du niveau des traitements dentaires. Tous les domaines auxquels le FCED a contribué en 1977 figurent aux pages suivantes.

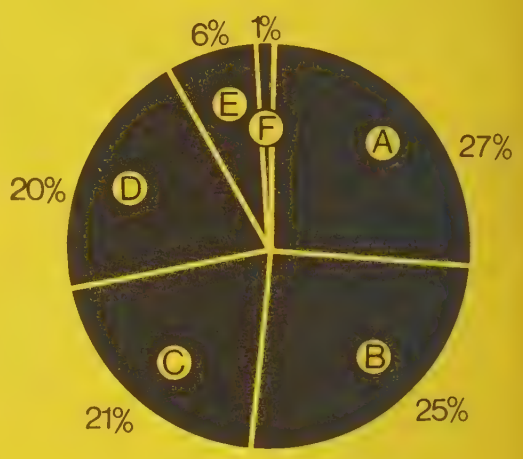
subventions approuvées pour le financement en 1978

Projet	*Organisme parrain*
10ème Conférence biennale sur la recherche et l'éducation dentaires	ADC/AFDC
Conférence d'enseignement sur la médecine dentaire exercée à l'hôpital	ADC/AFDC
Programme de clinique sur table des étudiants	ADC/FCED

canadian fund for dental education
fonds canadien pour l'enseignement dentaire

income by source-1977
sources des revenus-1977

A	Dental Profession Profession dentaire	$ 63,654	27%
B	Business and Industry Commerce et industrie	$ 59,752	25%
C	Foundations Fondations	$ 49,747	21%
D	Investment and Sundry Income Revenus de placements et de sources diverses	$ 45,230	20%
E	Dental Organizations Associations dentaires	$ 13,616	6%
	Operational Income Revenus d'exploitation	**$231,999**	**99%**
F	Endowment Fund Gift Don au fonds de dotation	$ 3,000	1%
	Total	**$234,999**	**100%**



1977 operating expenses vs. total income
1977 frais d'exploitation en regard du revenu total

Fund Raising Campagne de souscription	$ 35,885	15%
Management Administration	$ 22,484	10%
Program Services Services relatifs aux programmes	$ 15,452	6%
Total	**$ 73,821**	**31%**

For more information and a copy of the auditor's report write to:

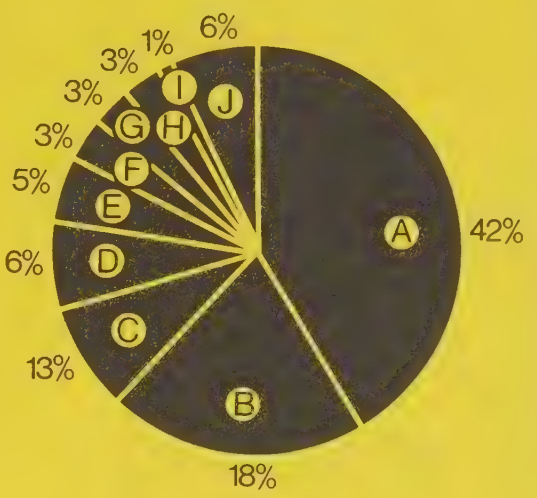
Chairman of the Board of Trustees
Canadian Fund for Dental Education
Suite 205, 44 Eglinton Avenue West
Toronto, Ontario M4R 1A1

Pour obtenir de plus amples renseignements et une copie du rapport du vérificateur comptable prière de s'adresser à:

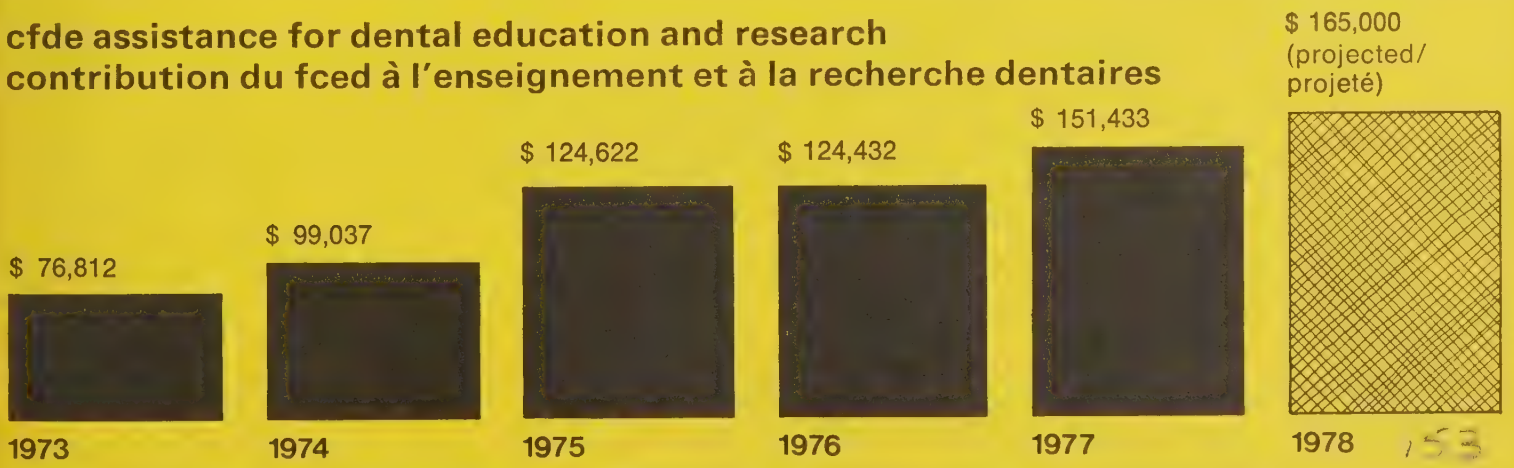
Monsieur le président du Conseil de fiducie
Fonds canadien pour l'enseignement dentaire
Suite 205, 44 Eglinton Avenue West
Toronto, Ontario M4R 1A1

these programs helped dentistry in 1977
your support made them possible
grâce à votre appui, les programmes ci-dessous ont pu seconder la médecine dentaire au cours de 1977

A	Teacher Training Fellowships (Dentists and Dental Hygienists) Bourses de formation en enseignement (Dentistes et Hygiénistes dentaires)	$ 67,146	42%
B	Research Project – University of Toronto Projet de recherche – Université de Toronto	$ 28,002	18%
C	Graduate and Undergraduate Accreditation Surveys Enquêtes relatives à l'agrément des diplômés et des étudiants	$ 21,000	13%
D	Grants to Dental Schools Subventions aux écoles dentaires	$ 10,000	6%
E	Student Table Clinics and Conference Conférence et cliniques sur table des étudiants	$ 8,600	5%
F	Lorne E. MacLachlan Endowment – Teacher Training Awards Dotation Lorne E. MacLachlan – Bourses pour la formation d'enseignants	$ 5,115	3%
G	Sundry Awards Octrois divers	$ 4,970	3%
H	Dental Teaching Conference Conférence sur l'enseignement dentaire	$ 4,600	3%
I	Cleft Palate Congress Congrès sur les fissures palatines	$ 2,000	1%
		$151,433	**94%**
J	Invested in Income-Producing Securities Valeurs productives d'intérêt	$ 9,744	6%
	Total	**$161,177**	**100%**



cfde assistance for dental education and research
contribution du fced à l'enseignement et à la recherche dentaires



Honour Roll / Tableau d'Honneur

Contributors from Business, Industry, Trusts, Foundations and Dental Organizations

Donateurs - Entreprises, Industrie, Fonds de Fiducie, Fondations et Organismes Dentaires

FOUNDING MEMBERS / MEMBRES ORIGINAIRES ($10,000 and over / et plus)

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Ritter Company, Rochester, N.Y.
Royal Trust Corporation of Canada, Toronto, Ont.
Takara Company Canada Limited, Mississauga, Ont.
University of Toronto, A.S.P.D. Student Chapter, Toronto, Ont.
White, S. S. Dental Division, Etobicoke, Ont.

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Canadian Academy of Restorative Dentistry
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Central Dental Limited, Toronto, Ont.
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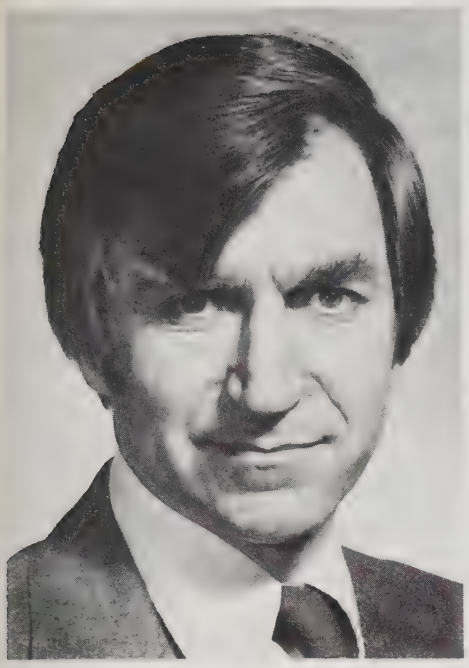

Dr. G. S. Beagrie

UBC SELECTS DEAN

The University of British Columbia's Board of Governors has announced the appointment of Dr. George S. Beagrie as Dean of the University's Faculty of Dentistry. The appointment is effective July 1, 1978.

Dr. Beagrie succeeds Dr. S. Wah Leung who resigned as Dean last June and continues as a professor in the Faculty. Dr. D.J. Yeo, head of the Department of Public and Community Dental Health and Director of the School of Dental Hygiene, has served as Acting Dean since July 1, 1977.

A native of Scotland, Dr. Beagrie received his licenciate in dental surgery from the Royal College of Surgeons, Edinburgh, in 1947 and his Fellowship in the College in 1954. He completed postgraduate studies at the University of Michigan and the University of Oslo, Norway, and, in 1966, he was awarded his Doctorate by the University of Edinburgh. From 1963 to 1968 he served as Professor and Chairman of the Division of Restorative Dentistry, University of Edinburgh.

Dr. Beagrie came to Canada in 1968 and a year later, became a Fellow of the Royal College of Dentists of Canada. He was appointed Professor and Chairman of the Division of Clinical Sciences at the University of Toronto's Faculty of Dentistry in 1968 and, in 1974, was appointed Chairman of the Graduate Department of Dentistry and Director of the Division of Postgraduate Dental Education, University of Toronto.

In addition to his university appointments, Dr. Beagrie has served on a large number of councils and committees in the United Kingdom and Canada, as well as at the International level. Since 1971, he has served as Director of the Dental Training Grant Program for the Medical Research Council of Canada. He was Dental Editor of the Canadian Dental Association's Tape Cassette Continuing Education Program for four years and, in 1972, was named Chairman and Organizer of the CDA Conference on Continuing Dental Education.

Since 1975, Dr. Beagrie has served as Consultant to the Scientific Assembly Committee of the Fédération Dentaire Internationale and Consultant in Dental Education to the World Health Organization. An internationally renowned author and lecturer, Dr. Beagrie is currently President of the Royal College of Dentists of Canada and of the International Association for Dental Research.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on February 28, 1978:

Common Stock Fund	$28.129
Fixed Income Fund	$20.620
Guaranteed Fund	$14.390
Balanced Fund	$ 9.999

Total assets (market value) of the plan were $26,334,490.72.

The previous month's figures, as of January 31, 1978, stood as follows:

Common Stock Fund	$28.001
Fixed Income Fund	$20.482
Guaranteed Fund	$14.383

Total assets (market value) of the plan were $25,951,121.52.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

Dr. B. Goldberg

MANITOBA PRESIDENT

Dr. Benjamin Goldberg was installed as the 54th President of the Manitoba Dental Association during the Association's 93rd Annual Meeting held February 3-4, 1978, in Winnipeg.

Dr. Goldberg graduated from the University of Toronto's Faculty of Dentistry in 1960 and has been in private practice in Winnipeg since then. He has been on the Board of Directors of the Association since 1974 and has served as the Manitoba Dental Association Registrar and Vice-President.

Dr. Goldberg has also served as Chairman of the Association's Hospital Committee, the Continuing Education Committee and the Geriatric Committee, as well as being the Manitoba representative to the Canadian Dental Association's Council on Health Care.

Other members of the MDA Board are Dr. Walker Shortill, Dr. Gary Nowazek, Dr. Robert Baker, Dr. Harold Diamond, Dr. Carl Enns, Dr. Vern Rosnoski and Ms. Susan James.

Name Change

In November, 1977, the name of the American Society of Oral Surgeons was officially changed to the "American Association of Oral and Maxillofacial Surgeons".

NOTICE TO ALL DENTISTS

The Canadian Dental Association has made available, a new membership category called Life Membership.

A Life Membership entitles you to:

- A certificate of life membership
- A complementary subscription to the Journal of the CDA
- Attendance at scientific meetings without payment of registration fees

with no assessment of regular association grants or dues. However, a Life Member shall not be entitled to vote on any question arising at any meeting of the members of the Association.

To qualify for Life Membership:

- You must have 40 years service in the profession or
- Attained the age of 65 years and presently be a member of the CDA

In order to reclassify your membership status, kindly complete the application form provided.

(A Doctor qualifying for Life Membership after June 30th, will become a life member effective January 1st of the following year.)

AVIS À TOUS LES DENTISTES

La direction de l'Association Dentaire Canadienne offre maintenant l'option de membre à vie de l'ADC.

Le titre de member à vie vous donne droit à:

- Un certificate de membre à cet effet
- Un abonnement gratis au Journal de l'ADC
- Une participation aux séances dentaires sans frais d'inscription

sans préjudice concernant les cotisations antérieures. Toutefois, un membre à vie n'a pas le droit de vote sur les questions posées lors des réunions des membres de l'Association.

Les critères d'adhésion sont les suivants:

- Avoir quante années de partique active de la profession où
- Avoir atteint l'âge de 65 ans et être présentement membre de l'ADC.

Afin de pouvoir reclassifier votre statut de membre, veuillez compléter la demande d'adhésion ci-jointe.

(Tout chirurgien-dentiste d'inscrivant après le 30 juin sera considéré membre à vie le 1er janvier de l'année suivante.)

APPLICATION FOR LIFE MEMBERSHIP
CANADIAN DENTAL ASSOCIATION

Name _____
surname given name(s)

Address _____
street apt. no.

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_____
city prov. and/or country postal code

Place of Birth _____ Date of Birth _____
date month year

Dental School(s) attended _____ years _____

_____ years _____

Year of Graduation _____ Degree _____

Specialty (if any) _____

All Memberships held in dental organizations for the previous 12 months.

_____

_____

_____

I hereby apply for Life Membership in the Canadian Dental Association.

I understand that my Life Membership entitles me to a subscription to the Journal of the Canadian Dental Association.

Date _____ Signature _____

Any Doctor qualifying after June 30 for life membership will become effective January 1st of the following year.

For office use only

Approved by _____

Date _____

Français au verso

DEMANDE D'ADHÉSION MEMBRE À VIE DE L'ASSOCIATION DENTAIRE CANADIENNE

Nom _____
nom de famille prénom(s)

Adresse _____
rue app.

_____
ville province/pays code postal

Lieu de naissance _____ Date de naissance _____
date mois année

Ecole(s) dentaire(s) fréquentée(s) _____ années _____

_____ années _____

Année de graduation _____ Diplôme _____

Spécialité (s'il y a lieu) _____

Membre d'organisations dentaires au cours des douze derniers mois:

_____

_____

_____

Je désire me prévaloir du titre de membre à vie de l'Association dentaire canadienne.

Cela me donne droit de recevoir, ma vie durant, le Journal de l'Association dentaire canadienne.

Date _____ Signature _____

Tout chirurgien-dentiste faisant demande après le 30 juin, sera effectivement considéré membre à vie le 1er janvier de l'année suivante.

à l'usage du bureau seulement Approuvé par _____

Date _____

66TH ANNUAL WORLD DENTAL CONGRESS OF FDI

Travel and tour arrangements have now been made on behalf of members of the Canadian Dental Association in connection with the 66th Annual World Dental Congress of the Fédération Dentaire Internationale being held in Madrid, Spain, September 25-29, 1978. Lawson, McKay Tours Ltd., specialists in conference travel, have once again been asked to co-ordinate these arrangements, including group flights, hotel accommodation in Madrid, and Pre- and Post-Congress tours for those members and their friends who wish to take advantage of the significant savings that result from group travel. A 16-page descriptive brochure is available from Lawson, McKay at 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9, or telephone (416) 364-0622.

DEATHS

Bricker, Joseph Stirling, 86. Vancouver, British Columbia. Royal College of Dental Surgeons, 1914. 21-1-78. Survived by Marion (daughter).

Cameron, Nole. Nipawin, Saskatchewan. Howard University, 1949. 23-12-77.

Craig, Charles Everett, 56. Vancouver, British Columbia. University of Toronto, 1943. 20-1-78. Survived by Mary (wife), David, Carky, Gordon and Jeoffrey (sons) and Kathy (daughter).

Dores, James Emmanuel, 84. Hamilton, Ontario. Royal College of Dental Surgeons, 1917. 16-1-78.

Forget, Ernest, 81. Montreal, Quebec. University of Montreal, 1924. 5-1-78.

Fullerton, Jesse Clair, 80. Toronto, Ontario. University of Toronto, 1923. 24-2-78. Survived by Mary (wife) and William and Hubert (sons).

Hancock, Walter F., 70. Fort Qu'Appelle, Saskatchewan. University of Toronto, 1933. 7-11-77. Survived by Margret (wife), a daughter and three sons.

Kalmusky, Arthur Taras, 51. Toronto, Ontario. University of Toronto, 1955. 10-1-78.

Laforce, Jean Jacques, 56. Drummondville, Quebec. University of Montreal, 1946. 2-10-77.

McLeod, Charles Stuart, 82. Victoria, British Columbia. University of Toronto, 1923. 11-12-77.

Skilling, Harold Roy, 84. Toronto, Ontario. University of Toronto, 1923. 25-1-78.

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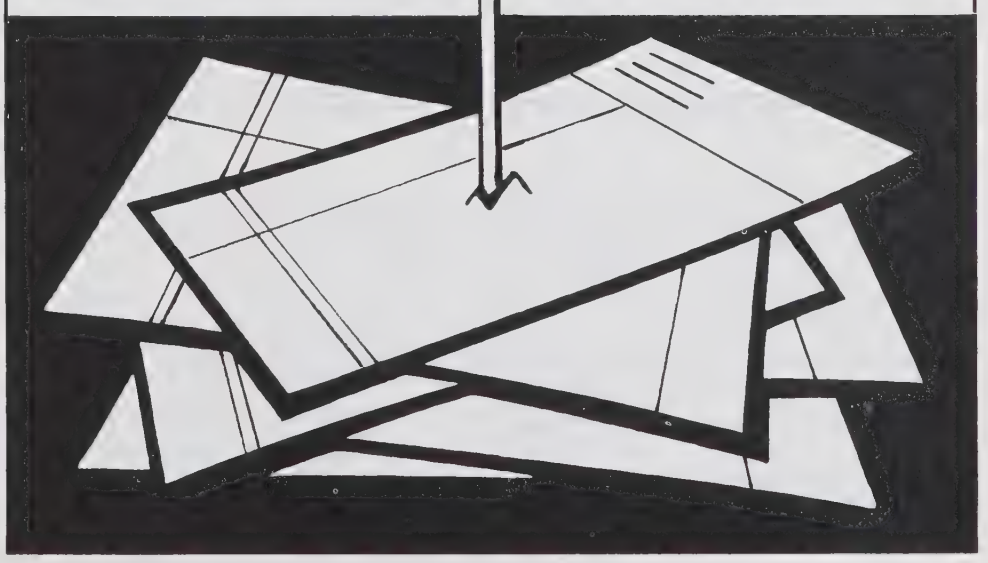

L'ADC HÔTESSE AUX RÉCEPTIONS "BIENVENUE À LA PROFESSION" AUX FACULTÉS DE MÉDECINE DENTAIRE DU CANADA

A la fin du mois de septembre et pendant tout le mois d'octobre, l'Association dentaire canadienne a rendu visite aux facultés dentaires du Canada pour agir à tire d'hôtesse aux réceptions "Bienvenue à la profession" organisées pour les étudiants dentaires de tous les niveaux.

Ces réceptions avaient trois objectifs:

(1) promouvoir la liaison entre l'ADC et les étudiants de médecine dentaire du Canada
(2) encourager l'adhésion des étudiants à l'ADC
(3) reconnaître les efforts faits par les représentants des étudiants des diverses facultés pour 1976-77 en ce qui concerne la promotion de l'adhésion des étudiants à l'ADC et leur participation à ses diverses activités.

Le format de ces réceptions variait d'une université à l'autre mais, en général, elles prenaient la forme d'une dégustation de vins et fromages tenue en fin d'après-midi. Le gouverneur de l'ADC de la région ou province était invité à prononcer quelques paroles sur l'Association et ses rapports avec les étudiants. Les gouverneurs ont expliqué l'importance du nouveau rôle joué par les étudiants de médecine dentaire dans les activités de l'Association. A partir de 1978, les représentants des étudiants élus lors de la Conférence canadienne sur les affaires étudiantes de 1977, siègeront au nouveau Conseil sur les affaires étudiantes de l'ADC. La création de ce nouveau Conseil augmentera considérablement le statut ainsi que l'importance de la participation étudiante aux activités de l'Association.

Les gouverneurs de l'ADC étaient assistés, pour leur présentation, par des représentants de l'Association provinciale et par Linda Teteruk, directrice des Affaires étudiantes à l'ADC. Plusieurs des Associations provinciales ont également généreusement co-subventionné ces réceptions.

A ces occasions, le gouverneur était également chargé d'offrir au représentant des étudiants pour 1976-77 une attrayante plaque à titre de marque de reconnaissance. C'est à la suite d'élections tenues à chaque faculté dentaire, qu'un étudiant a été nommé au poste de représentant des étudiants à l'ADC. Cet étudiant doit en être à la troisième anné de ses études et doit être familier avec l'association dentaire canadienne ainsi qu'avec la profession organisée au Canada. Dans le cadre de ses fonctions, il a la responsabilité directe de représenter l'Association auprès de ses camarades d'étude; de promouvoir l'adhésion des étudiants à l'Association, de faire savoir aux étudiants ce qui se passe à l'ADC ou aux organismes connexes, etc. . . . , de représenter le corps étudiant au Congrès annuel des étudiants dentaires canadiens et d'effectuer la liaison entre les étudiants et l'ADC.

Inutile d'ajouter que le poste de représentant des étudiants à l'ADC constitue une responsabilité dynamique qui exige beaucoup de temps et mérite, sans aucun doute, la reconnaissance de l'association.

A titre de premier essai, ces réceptions pour les étudiants ont été accueillies avec beaucoup d'enthousiasme et d'intérêt. L'on estime que 60-85 pour cent du corps étudiant assistaient aux réceptions. Les étudiants ont ainsi eu l'occasion de communiquer personnellement avec leur gouverneur à l'ADC et ils ont pu interroger les délégués sur la profession dentaire organisée au Canada.

L'on espère que les réceptions "Bienvenue à la profession" seront, à l'avenir, un événement annuel et que les associations provinciales s'uniront à l'ADC pour encourager une réaction et un engagement de la part des étudiants à l'échelle nationale et provinciale.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 28 février, 1978:

Fonds d'actions ordinaires	$28.129
Fonds à revenue fixe	$20.620
Fonds avec garantie	$14.390

L'avoir total (valeur marchande) du régime se montait à $26,334,490.72.

Au 31 janvier, 1978, les chiffres du mois précédent étaient les suivantes:

Fonds d'actions ordinaries	$28.001
Fonds à revenue fixe	$20.482
Fonds avec garantie	$14.383

L'avoir total (valeur marchande) du régime se montait à $25,951,121.52.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

LES REVENUS DU FCED POUR 1977 S'ÉLEVENT A PLUS DE $235,000

Selon une déclaration récente du président du FCED, le Dr J. W. Neilson, "pour la première fois depuis ses débuts en 1962, les revenus du Fonds canadien pour l'enseignement dentaire ont dépassé $200.000".

"Une fois de plus en 1977, les dons personnels des dentistes et des auxiliaires, qui s'élevaient à plus de $63.000, constituaient la plus grande source individuelle de revenu et faisaient l'objet d'une augmentation de 9 pour cent sur l'année dernière. Les organismes dentaires ont généreusement contribué des sommes qui dépassaient celles de l'année dernière de 15 pour cent. Egalement comprise dans le revenue de 1977 figurait une somme de $3.000, contribuée au fonds de dotation d'un club d'études dentaires existant."

"L'exemple interrompu qu'ont donné les membres de la profession a sans aucun doute poussé diverses fondations, entreprises et industries à augmenter considérablement leurs contributions".

"Les administrateurs du Fonds sont très fiers de ces records et apprécient vivement la générosité des nombreux donateuers. Grâce aux résultats obtenus, le FCED a été en mesure de procurer à l'enseignement et à la recherche dentaires une aide dont ils ont de plus en plus besoin", ajoute le Dr Neilson.

LE NOMBRE D'ÉTUDIANTS ADHERENTS A L'ADC CONTINUE A AUGMENTER

Le nombre d'étudiants adhérents à l'ADC continue à augmenter; à la fin de décembre 1977, il battait tous les records, soit 74,4 pour cent du nombre total des étudiants, en regard de 70,7 pour cent pour l'année universitaire 1976-77.

Les chiffres s'appliquant aux adhérents de six des dix facultés dentaires canadiennes ont augmenté l'an dernier, dans certains cas de façon considérable. La décomposition du nombre d'adhérents par faculté figure au tableau.

C'est grâce aux efforts soutenus des étudiants représentant l'ADC à chaque faculté que ce niveau élevé de participation a été maintenu à la majorité des facultés dentaires. L'adhésion étudiante au Canada se fait à titre purement volontaire et l'appui ainsi que les efforts des représentants ont en effet considérable sur le maintien d'un nombre élevé d'adhérents.

Nous félicitons les représentants des étudiants pour les résultats qu'ils ont obtenus en 1977-78, en ce qui concerne le nombre élevé d'adhérents ainsi que leur participation aux activités de l'Association aux facultés dentaires. Il s'agit des représentants suivants:

James Girard — Université de Colombie Britannique
James Anderson — Université de l'Alberta
Craig Meyers — Université de Saskatchewan
Donald Neil — Université du Manitoba
David Hurst — University of Western Ontario
Jack Gerrow — Université de Toronto
Richard Gilsig — Université McGill
Gary Cousens — Université de Montréal
Jean-Luc Dion — Université Laval
Robert DeWolfe — Université Dalhousie

Le nombre total des étudiants adhérents à l'ADC s'élève aujourd'hui à 74 pour cent. Essayons d'accroître encore ce chiffre.

	Nombre d'adhérents			
Ecole de médecine dentaire	Etudiants adhérents	Nombre total d'étudiants	% 1977-78	% 1976-77 à titre de comparaison
Colombie Britannique	92	159	57.8%	63.6%
Alberta	118	201	58.7%	67.5%
Saskatchewan	40	84	47.6%	45.4%
Manitoba	108	123	87.7%	47.1%
Western Ontario	216	224	96.4%	100 %
Toronto	496	508	97.6%	100 %
McGill	133	172	77.3%	72.1%
Montréal	149	332	44.8%	32.8%
Laval	45	89	50.6%	31.5%
Dalhousie	88	104	84.6%	69.8%

L'IMPORTANCE DES POSITIONS DE LA CANINE ET DES DENTS ANTÉRIEURES DANS L'OCCLUSION

Arthur E. Kahn, DDS
New York

Traduit de l'anglais par R. Lambert, éditeur au journal de l'association dentaire canadienne.
Pour se conformer aux exigences de l'auteur, la traduction est littérale. Le français y laisse des plumes et nous nous en excusons.

Les positions des canines et des incisives supérieures entre elles et entre les antérieures inférieures doivent être en harmonie avec les joints temporo-mandibulaires et la musculature mandibulaire afin que soit normale la physiologie du système masticatoire.

Les contacts des dents antérieures doivent fonctionner d'une façon protectrice lors des mouvements d'excursion de la mandibule, en faisant la disclusion des dents postérieures. Les dents postérieures préviennent l'excès de charge sur les dents antérieures. Donc, la relation entre les dents postérieures et antérieures en est une de protection mutuelle[11].

Les dents antérieures doivent également fonctionner en harmonie avec le joint temporo mandibulaire pendant le mouvement latéro-protrusif, afin d'augmenter la portée latérale des dents postérieures lorsque la mandibule se meut en avant et de côté[2]. Les dents de la mandibule sont ainsi capables de balancer un bol alimentaire abondant contre les dents du maxillaire et, par l'utilisation ordonnée de la langue, des lèvres et des joues elles préparent le bol alimentaire pour le tract digestif. Pour cette raison, le mouvement latéro-protrusif est important dans chacun des trois genres de mastication:

1. Inciser les aliments avec les antérieures.
2. Examiner les aliments entre la langue et les dents d'en avant.
3. Ecraser les aliments avec les postérieures[3].

Fonction de la dent antérieure

L'arrangement des dents antérieures supérieures et inférieures entre elles est déterminant pour l'efficacité et l'harmonie du mouvement d'incision. S'il y a recouvrement horizontal des incisives supérieures sur les inférieures et qu'un espace existe, il n'y a pas de possibilité d'utiliser les relations dents-condyle pour créer une disclusion immédiate des dents postérieures. Lorsque les dents antérieures ne font pas la disclusion des postérieures dans l'incision fonctionnelle, un certain degré de distorsion est requis pour l'incision latérotrusive. Une telle distorsion devient nécessaire en raison de l'inhabilité à faire la disclusion des postérieures. La rencontre des dents survient ainsi avec possibilité de traumatisme de l'occlusion ce qui peut affecter soit l'appareil d'attachement des dents, soit la musculature, soit les joints temporo-mandibulaires ou encore causer l'usure excessive des dents[4-5].

L'usure des dents antérieures peut aussi se produire lorsqu'il y a différence entre la relation centrique et la position d'inter-digitation maximale (occlusion centrique). Le degré de mouvement antérieur de la mandibule en fermant de la relation centrique à l'occlusion centrique est indiqué par la ligne crayonnée sur les surfaces linguales des dents supérieures antérieures (fig. 1, A). Alors, les dents antérieures de la mandibule glissent en avant et horizontalement, de la position de contact reculé en fermeture d'occlusion centrique; l'usure des dents en mauvaise relation peut survenir (fig. 1, B à D). L'usure progressive des dents antérieures, permettant le contact sur les postérieures, réduit la capacité des incisives et des canines à fonctionner comme agents de disclusion[6]. A mesure que le recouvrement vertical des dents antérieures est réduit par l'usure continuelle, l'émail s'efface sur les postérieures aussi bien que sur les antérieures (fig. 1, E-F). Cette condition est fréquemment accompagnée par une dysfonction du joint temporo-mandibulaire. En général, le mécanisme est une relation entre parafonctions et attrition des dents[7].

Si la mandibule exécute une déviation latérale à partir d'une position de contact rétrusif aussi bien qu'un glissement antérieur à l'occlusion centrique, il peut s'en suivre tension au J.T.M. et spasmes musculaires[8-10]. Si, en plus du recouvrement horizontal des incisives supérieures sur les incisives inférieures, il y a recouvrement des canines supérieures, les relations dents-condyle ne peuvent effectuer la disclusion normale[11]. Les dents postérieures tant au côté balançant que travaillant sont incapables d'éviter la collision entre elles. La relation d'un tel arrangement avec la fré-

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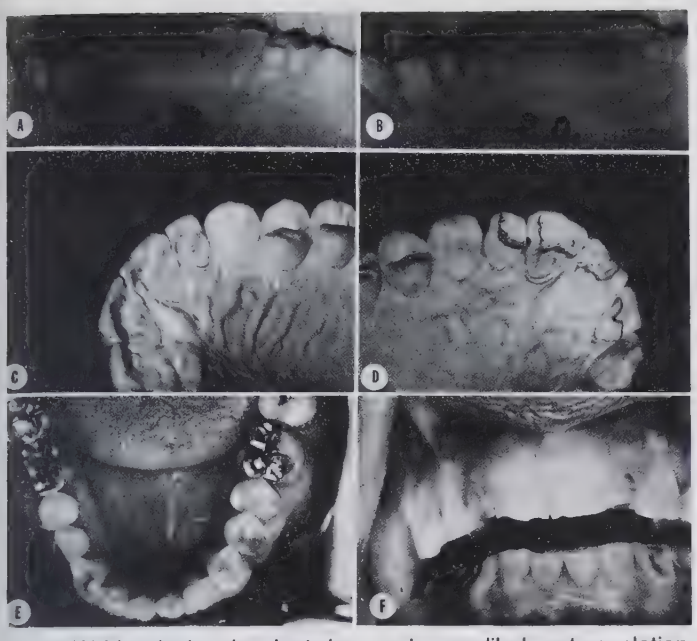


Fig 1 (A) L'occlusion des dents lorsque la mandibule est en relation centrique. (B) Occlusion centrique. (C) Facettes d'usure prononcée aux dents antérieures. (D) La ligne crayonnée indique l'étendue de l'usure. La percée de la calotte d'émail est déjà apparente sur la deuxième prémolaire. Noter l'usure sur les canines. (E) La percée de l'émail s'étend de prémolaire à prémolaire. (F) L'ampleur des usures.

quence de surtension aux joints et aux muscles et de spasmes musculaires est alarmante[12]. Le syndrome de mastication douloureuse, de crépitement et de trismus occasionnel est commun.

On peut apprendre beaucoup de cette précédente analyse. L'inhabilité du patient à se procurer une disclusion organisée par des relations combinées dents-condyle (canines et antérieures supérieures) impose des critères définis à considérer dans le diagnostic et le traitement. Lorsque les dents antérieures, particulièrement les canines ne sont pas en relation qui rendent possible la disclusion des postérieures, l'ajustement occlusal de la dentition naturelle est contre-indiquée (fig. 2, A-B). De même que sont contre-indiquées les procédures de réhabilitation extensives (postérieures ou complètes).

Le problème du recouvrement horizontal

Des procédures orthodontiques doivent d'abord être entreprises avant toute autre mesure de réhabilitation pour corriger le recouvrement horizontal et ainsi fournir un recouvrement vertical des canines et incisives afin de permettre une disclusion postérieure. Un recouvrement horizontal excessif est fréquemment associé au tableau clinique classique de désordre péridentaire grave qui peut de plus inclure une réduction de la dimension verticale de l'occlusion et diastèmes.

Un telle dimension verticale de l'occlusion peut être restaurée sans augmenter la ratio couronne-racine. A mesure que la dentition en migration est ramenée, les recouvrements vertical et horizontal sont dramatiquement réduits. Simultanément, le mouvement lingual des dents antérieures supérieures et inférieures restaure la dimension verticale réduite et fournit un recouvrement favorable des antérieures[13].

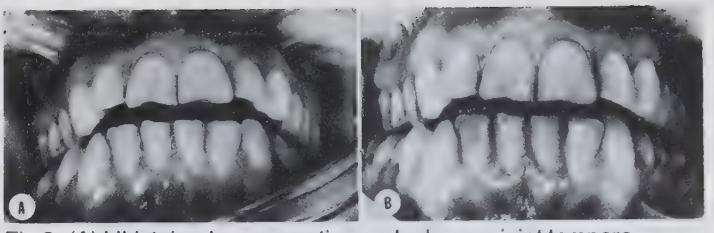
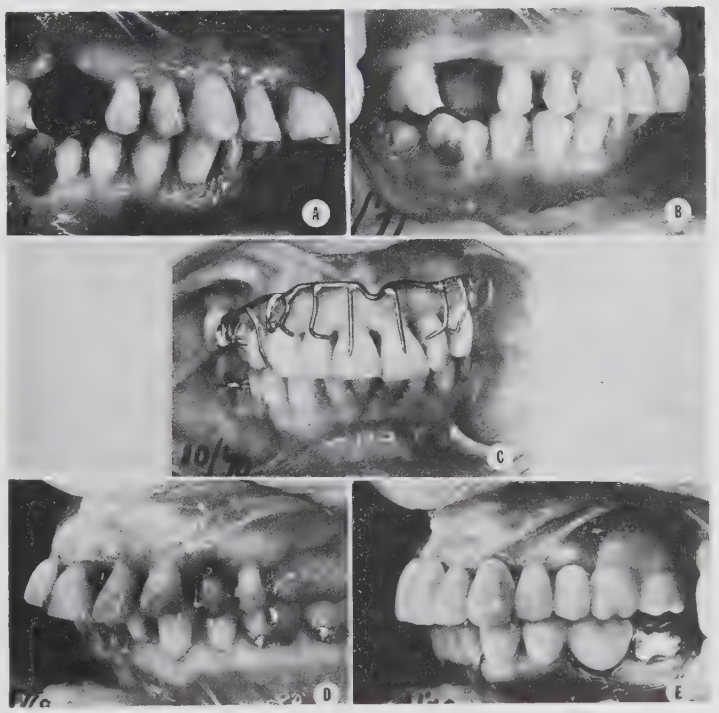


Fig 2 (A) L'histoire de cas mentionne douleur au joint temporo mandibulaire avec inhabilité de mastication sans malaise important. A noter, en plus du manque de recouvrement des incisives, le surplomb horizontal des deux canines supérieures. (B) Noter comment le problème myofonctionnel est relié à la béance canine à canine. A chaque déglutition le patient projette la langue dans les espaces entre les dents antérieures du haut et du bas.

Fig 3 Radiographies avant le traitement. Conservation stratégique des dents irrécupérables périodontiquement, pendant la correction orthodontique.

Fig 4 (A) Les dents antérieures ont fait une migration créant un surplomb horizontal prononcé. (B) La disclusion antérieure est maintenant possible. Le plateau labial est remodelé. (C) Vue antérieure des appareils pendant la phase orthodontique du tratiement. (D et E) Avant et après traitement.



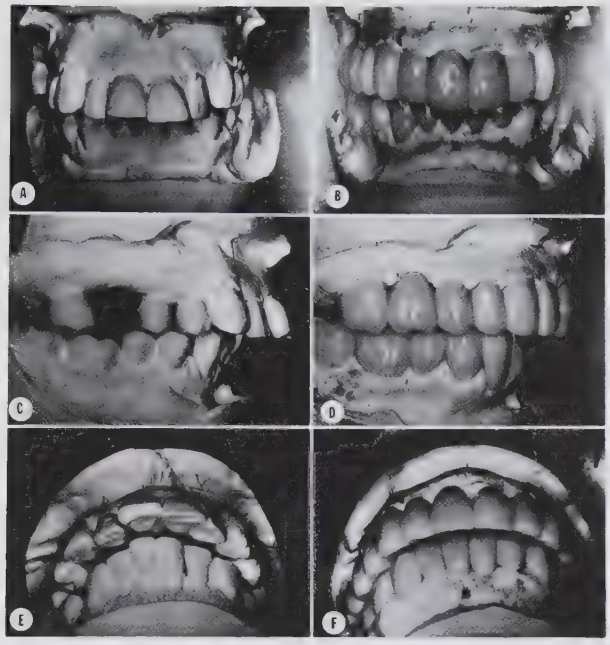


Fig 5 (A et C) Modèles diagnostic avant traitement. (B et D) Repositionnement orthodontique. Restaurations temporaires en place. Noter l'amélioration de la dimension verticale et la nouvelle relation des dents antérieures. (E et F) Possibilité d'organiser une disclusion par la combinaison des relations dent-condyle tant aux canines qu'aux autres dents antérieures.

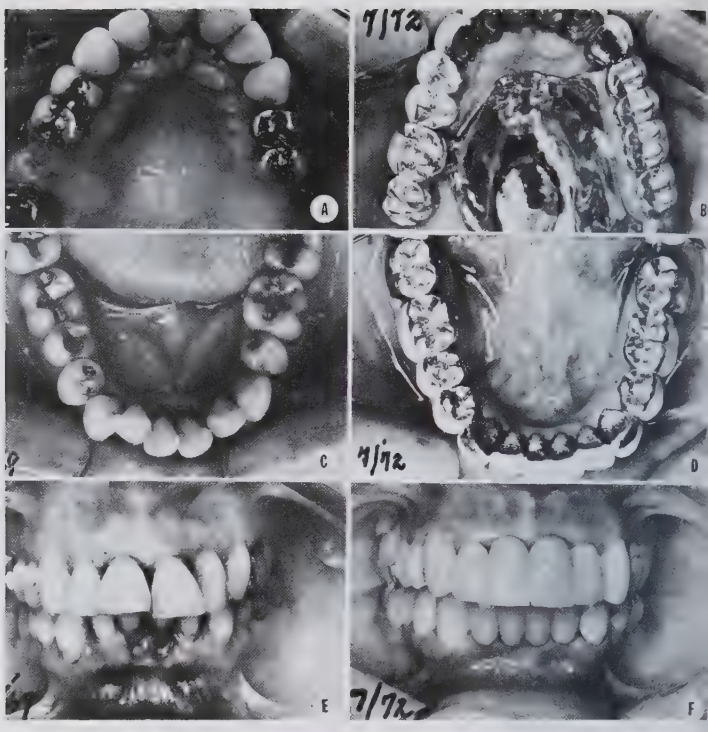


Fig 6 (De A à F) Avant et après traitement. L'ensemble des procédures d'orthodontie, de périodontie et de reconstruction occlusale ont été employées pour restaurer une dentition débilitée.

Un remodelage de la lame osseuse labiale déformée se produit, éliminant le besoin de chirurgie alvéolaire de correction lorsque les dents antérieures impliquées doivent être extraites. Les dents antérieures irrécupérables peuvent être maintenues stratégiquement pendant la phase de traitement orthodontique, afin d'influencer le remodelage du plateau osseux labial (fig. 3-4).

L'avantage d'une telle séquence de traitement est observable par la comparaison entre les modèles d'étude originaux et ceux qui représentent les dents repositionnées sur lesquelles ont été construites des restaurations temporaires (fig. 5). Avec l'ensemble des procédures orthodontiques, périodontiques, et reconstruction occlusale, une dentition débilitée peut habituellement être restaurée. La disclusion peut être réorganisée par la relation combinée des canines, des dents antérieures et des joints temporo mandibulaires (fig. 6-7).

Les problèmes myofonctionnels

Les problèmes myofonctionnels non contrôlés sont souvent facteur étiologique chez les patients à béance antérieure (fig. 8). La dysfonction du joint temporo mandibulaire, les problèmes phonétiques et la maladie péridentaire sont communément observés chez ces patients[14]. Ceci n'est pas étonnant car les dents postérieures ne peuvent pas être séparées sauf par des gestes mandibulaires volontairement exagérés. Le mécanisme masticatoire manque d'habilité au repos normal.

Ainsi, la myothérapie fonctionnelle nécessite souvent l'apport d'autres techniques thérapeutiques pour restaurer la fonction (fig. 9). Les traitements orthodontiques, en présence de problèmes myofonctionnels non contrôlés, conduisent habituellement à l'échec du traitement (fig. 10). La recherche a indiqué que l'intervention orthodontique est inappropriée si, à la fin du traitement, des dérangements laissés sans correction causent des désordres du système stomatognathique. Une anomalie orthodontique des dents peut être échangée pour une anomalie fonctionnelle pendant la mastication et la déglutition. Cette condition peut être considérée pire que la condition originale[15-20].

Disclusion canine

Faite au hasard, la préparation de la concavité linguale des canines supérieures en vue de fournir une disclusion doit être découragée. Protection canine signifie liberté de mouvement dans les excursions latérales et latérotrusives, avec l'occlusion des canines antagonistes libérant les dents postérieures et antérieures. Elle incorpore dans son recouvrement vertical et ses concavités linguales les variances latérotrusives du condyle en rotation, aussi bien que les variations en médiotrusion qui sont influencées par le mouvement transtrusif total. Le blocage canine est de nature à inviter l'oscillation et les habitudes de serrement avec destruction ultime des structures de support péridentaire[21].

En organisant la disclusion par les canines, ces dents doivent être accouplées en position de rotation appropriée, de sorte que le bout de la canine inférieure suive le sillon mésial de la canine supérieure tout comme si elle suivait un arc dessiné par le condyle rapproché. Le recouvrement vertical de la canine supérieure doit fonctionner avec la pente de l'éminence du condyle en translation. Le degré le disclusion devrait être suffisant pour fournir une libération des dents aux côtés travaillant et non travaillant[22].

Le mouvement de côté immédiat (mouvement de Bennett) sans mouvement en bas, en avant et à l'intérieur du

Fig 7 Radiographies après traitement.

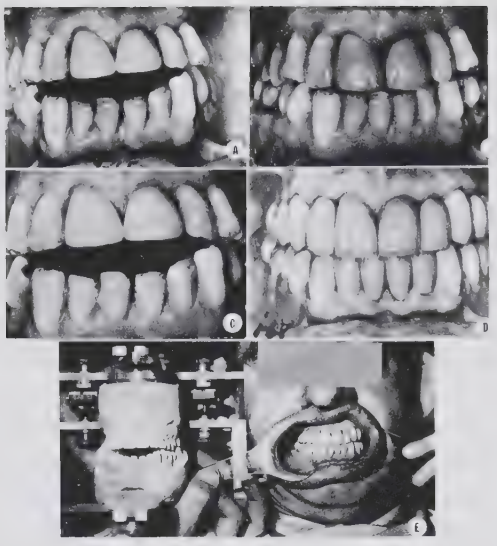
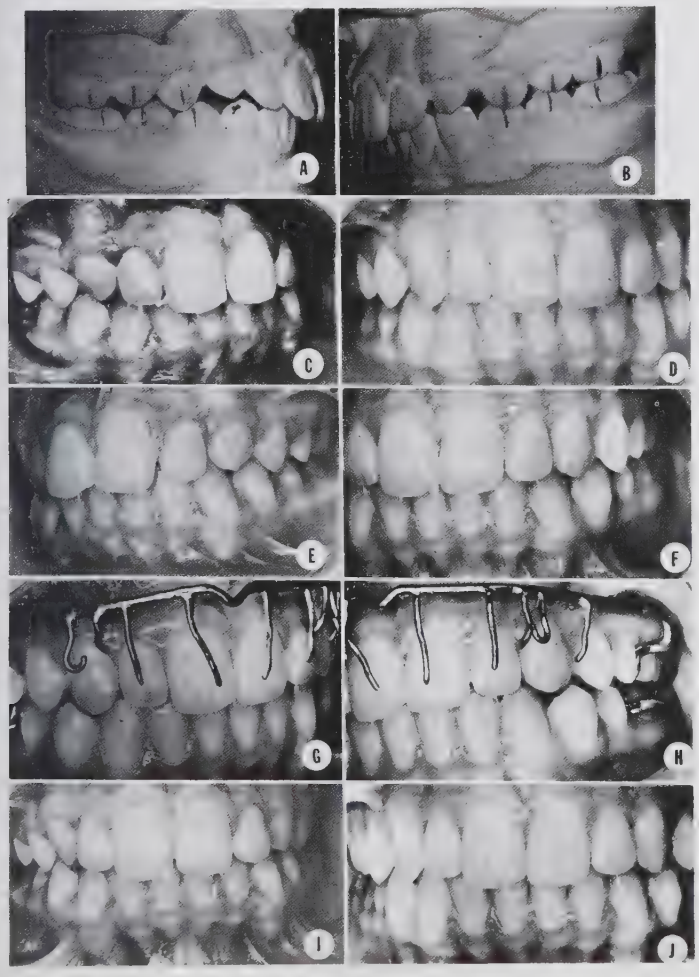


Fig 8 (De A à E) La béance doit être réduite avant les procédures de restauration. L'ensemble des procédures d'orthodontie, de périodontie, d'endodontie, de reconstruction occlusale redonne une entité fonctionnelle à une bouche non fonctionnelle. Les dents de la mandibule peuvent maintenant distribuer le bol alimentaire aux dents du maxillaire et, l'usage subordonné de la langue, des lèvres et des joues prépare le bol alimentaire pour le tract digestif. La restauration des contacts incisifs permet une prononciation adéquate des consonnes, ce qui engendre une amélioration dramatique de l'élocution du patient. L'élimination des chocs des dents postérieures grâce à la disclusion des postérieures contribue à enrayer la douleur au joint temporo-mandibulaire et favorise considérablement le traitement du problème péridentaire.

Fig 9 (A et B) Problème myofunctionnel bilatéral. Les canines sont empêchées de faire leur éruption vers leur relation fonctionnelle normale par la poussée latérale et la pression constante de la langue. La thérapie myofonctionnelle doit précéder l'intervention orthodontique. Noter l'éruption incomplète des canines. (C à J) Avant et après traitement. Noter le changement de longueur de la canine par traitement myofonctionnel et orthodontique. Noter également l'amélioration de la santé des tissus avant et après traitement.



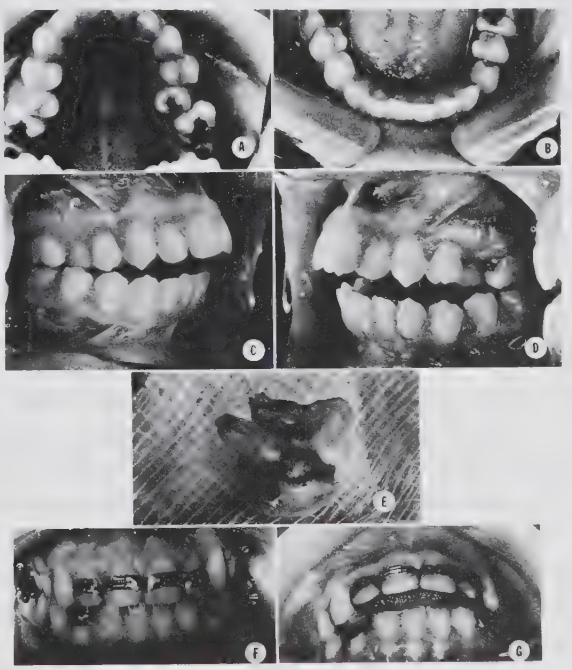


Fig 10 (A) Les dents antérieures sont projetées. L'arche supérieur est effondré. A mesure que l'arche rétrécit, les dents postérieures font une migration vers une relation croisée. (B) L'arche inférieure est en relation inharmonieuse avec l'arche supérieure. (C et D) La béance s'étend de la deuxième prémolaire droite à la première molaire gauche. Le choc des dents postérieures qui s'opposent est inévitable, car il n'y a pas de recouvrement vertical des dents antérieures. (E) La première molaire supérieure a été sacrifiée. Double étiologie d'implication péridentaire et résorption radiculaire menant à la perte de cette dent importante. (F et G) Malgré un résultat orthodontique acceptable avec période de rétention, les dents antérieures sont revenues en béance. La repose des bagues et des broches sur les quatre incisives n'ont pu prévenir l'effondrement vers la situation originale. Le problème myofonctionnel non contrôlé en est le facteur étiologique.

condyle éloigné (condyle balançant), doit être incorporé dans la concavité linguale de la canine au côté de l'axe vertical (condyle travaillant), puisqu'il n'y aura aucun apport du condyle travaillant pour séparer les dents au non travaillant.

Une telle collision des postérieures prive la bouche de sa liberté de mouvement. Ces interférences impêchent d'inciser les aliments minces et durs avec les incisives ou les canines sans interférence venant des molaires. L'angle produit par le condyle balançant constitue un agent de disclusion des dents au côté non travaillant (balançant). Sur le côté en rotation (travaillant) le recouvrement vertical des canines est l'agent de disclusion par excellence. En d'autres mots, les dents postérieures au côté travaillant sont libérées par la canine. Les dents postérieures du côté balançant et les incisives sont libérées par la canine et le condyle. Alors, le condyle qui avance est rarement agent de disclusion des dents au balançant et des incisives. Il y a cependant une relation entre le recouvrement vertical des canines au côté travaillant et la disclusion des dents du côté opposé car un angle incorrect peut causer la collision des dents.

Elimination sélective

L'élimination sélective des aliments est une autre fonction rendue possible par les mouvements latérotrusifs. Si les mouvements latérotrusifs rencontrent exactement les exigences d'une adequate organisation occlusale des canines et des incisives, la langue et les dents deviennent capables d'agir harnonieusement et sans effort conscient pour vérifier les aliments au sujet des substances étrangères ou indésirables qui seraient inappropriées pour le tract digestif. Par la langue et les dents, les parcelles alimentaires non désirées sont rejetées.

Action digestive par les dents du côté travaillant

A la fin de l'élimination incisive et sélective des particules d'aliment indésirable, le bol alimentaire est cédé à l'action des dents postérieures au côté travaillant.

Le degré d'efficacité des lames du mécanisme masticateur triturant le bol alimentaire et le préparant pour le tract digestif est contingent à l'exactitude de l'organisation suivie dans l'agencement des relations odontocondyliennes à la morphologie des dents.

Il est remarquable de noter à cet égard que même si les relations odontocondyliennes dans une disclusion canine organisée sont développées avec relation centrique comme point final, le mécanisme masticatoire fonctionne antérieurement à cette position. Cependant, lorsque la bouche est relâchée et que les dents se touchent dans la fermeture de déglutition, les cuspides buccaux de la mandibule recherchent leur fosse maxillaire respective alors que les cuspides linguaux maxillaires sont dirigent dans leur fosse mandibulaire respective (fig. 11). Le contact tripodique de ces éléments est atteint et l'ajustement raffiné des parties des dents survient alors.

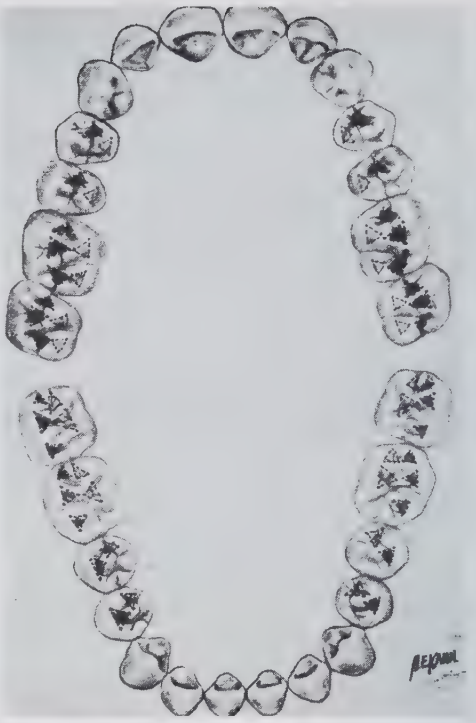


Fig 11 Tripodisme des contacts occlusaux.

Donc, la clef de l'occlusion c'est la disclusion car sans elle, les composantes des dents s'useront et on observera un éventuel changement de la morphologie, tant aux dents antérieures que postérieures.

Conclusion

Une organisation canine de disclusion doit avoir des canines en position appropriée, de sorte que dans tout mouvement possible de latérotrusion, le bout de la canine inférieure suive le sillon mésial de la canine supérieure. En effet, ceci signifie qu'une occlusion classe I en relation centrique est requise pour une telle position de rotation des canines: autrement, l'usure des dents peut survenir. Donc, pour la préservation du système stomatognathique, l'importance de l'orthodontie exécutée d'une façon appropriée devient dramatiquement évidente.

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SYMMETRY AND DENTAL ARCH FORM OF ORTHODONTICALLY TREATED PATIENTS

This manuscript won the 1976 Canadian Dental Research Foundation Award

Frank Jonathan Hechter, DMD, MSc
Winnipeg, Man.

This article discusses dental arch symmetry and compares untreated "acceptable" /normal occlusion case records against those obtained before orthodontic treatment and post-retention. An attempt is also made to mathematically describe the dental arch form of the maxillary and mandibular arches of the "acceptable" /normal occlusion sample.

Many hypotheses have been proposed concerning the maintenance and stability of tooth position following orthodontic treatment subsequent to the realization that teeth may change in their locations, following the removal of the retaining appliances. Specifically, the observation that pre-treatment dental arch symmetries tend to return in the post-retention period, has been commented upon by many orthodontists. This phenomenon, however, has not been well qualified. The subject of dental arch asymmetry has been extensively investigated, and most authors suggest that some asymmetry exists in all dental arches.[1-4]

Review of the literature

Although the subject of dental arch asymmetry has been extensively investigated, the majority of the investigations have compared selected isolated bilateral sites. Korbits[5] was the first to identify the existence of dental arch asymmetry using the midpalatal raphe as a sagittal axis of symmetry. Subsequently, the majority of the investigators of dental arch asymmetry have utilized the midpalatal raphe as a sagittal axis of symmetry in order to facilitate bilateral comparisons.[3,5-10] Gruenberg[11] devised an instrument known as the symmetroscope in order to identify assymmetries in the positions of teeth in both the sagittal and transverse planes. This method of orienting or positioning the casts has been criticized by Adler[12] and others on the basis that the dental casts were positioned by means of landmarks on the occlusal surface of the cast and thus, landmarks for the constructed midlines were selected from the dental arch itself. Numerous other measuring devices have been developed in order to measure dental arch asymmetries, including the symmetrograph,[13] symmetroscope,[11,14] calipers,[15] palatometer,[16] polygon line graphs,[17] palotopograph[18] and other specially designed measuring devices. None of the methods cited in the literature review, however, have qualified the asymmetry of the entire dental arch. Moreover, little attention has been paid to the effects of orthodontic treatment on the symmetry of the dental arches and the subsequent changes occurring in the post-retention period.

Arch form

Basic to the identification of dental arch asymmetry is the mathematical description of dental arch form. Several geometric curvilinear configurations have been suggested: the ellipse,[19-23] the parabola,[20,21,24-30] catenary[23,31-34] and some modifications of the ellipse[35,36] and the parabola,[37] a logarithmic curve,[38,39] a fourth degree orthogonal polynomial,[40] a general quadratic equation,[1] and a polynomial equation to the sixth degree.[4] Although several curvilinear configurations have been suggested in the literature for the description of the human dental arch form, few investigators have analyzed the data statistically. In addition, it has been suggested that differences in dental arch form may exist between and within various populations.[1,41]

The purposes of this investigation were to: (1) identify, quantify and analyze dental arch symmetry, (2) compare untreated "acceptable"/ normal occlusion case records against those obtained before orthodontic treatment, (3) compare these pre-treatment records against those obtained immediately post-retention and a minimum of two years post-retention, and (4) attempt to describe mathematically the dental arch form of the maxillary and mandibular arches of the "acceptable"/ normal occlusion sample.

Materials and methods

The sample consisted of 27 randomly selected Grade 6, Caucasian, Winnipeg school children with "acceptable"/ normal occlusion from the 1972 study of Banack, Cleall and Yip,[42] and a malocclusion group of 67 cases of all Angle malocclusion classifications which were made available from cases treated in the University of Manitoba Graduate Orthodontic Clinic and from the private practices of staff members.

Criteria for case selection included: availability of complete and accurate records, fixed multi-band edgewide mechano-therapy on both arches and active orthodontic

treatment performed during periods of growth. No attempt was made to select cases on the basis of treatment results.

Orthodontic plaster model records of treated patients were analyzed at the following stages of treatment: (1) pre-orthodontic treatment, (2) immediate post-retention, i.e., after completeion of treatment and (3) a minimum of two years post-retention. The sample was divided on the basis of the pre-treatment records into groups according to Angle's concept of occlusion. The malocclusion group was further subdivided according to whether permanent teeth were or were not extracted as an adjunct to orthodontic treatment (Table 1).

The midpalatal raphe was utilized as a reproducable anatomic midline and was identified by a point on the distal aspect of the incisive papilla and an easily identifiable point on the midpalatal raphe near the fovea centralis. Other selected landmarks were marked on the dental casts, using a black Pentel 2H hard-leaded pencil. In total, 77 landmarks were identified on both the maxillary and mandibular occlusal views (Fig 1).

In order to transfer the midline points to the mandibular arch, the models were occluded and the two points were transferred by means of a specially designed mechanical device (Fig 2).

The models were then photographed, utilizing a standardized photographic setup consisting of a 16 mm Bolex movie camera capable of photographing single frame views (Fig 3). The camera was equipped with 125 mm telephoto lens. Black and white reversal film (Kodak 7276 Plus X) was utilized and the target-film distance was 2 mm. The purpose of the telephoto lens in conjunction with the large target-film distance was to minimize the distortion encountered in the photography procedure.

Several views were then photographed of each set of records maintaining the occlusal plane and midline construction either parallel and/or perpendicular to the film. In order to assist the positioning of the models for the photography procedure, a co-ordinated Plexiglass system was utilized. This report deals only with computations made on the occlusal views of the maxillary and mandibular models.

After being processed, the film was then projected, using a Tagarno 16 film editor* and digitized frame by frame using a Ruscom Logistics strip chart digitizer† and the X and Y co-ordinates of the landmarks were punched directly on cards using an IBM keypunch machine‡ (Fig 4).

The cartisian data for the maxillary and mandibular occlusal views were then subjected to a coordinate analysis program[43] which standardized the co-ordinates for each point and calculated selected distances and angles between points, as well as listed these distances for each subject plus their means and standard deviations.

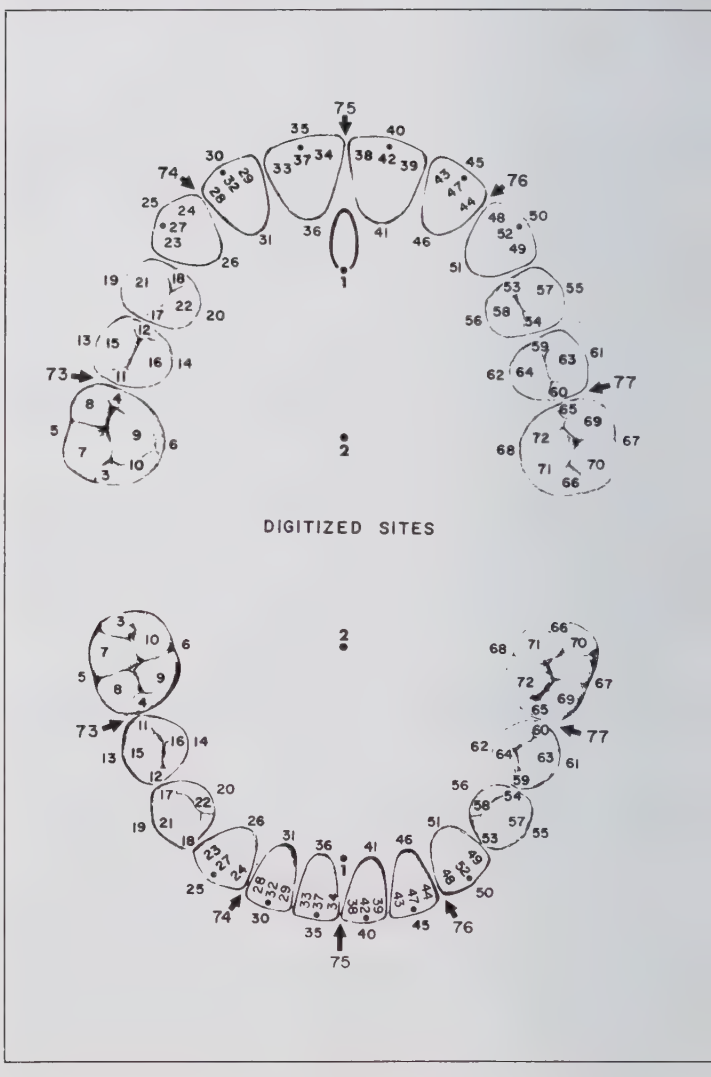
In order to quantify the degree of asymmetry of the dental arches of both the "acceptable"/ normal occlusion and malocclusion groups, three indices were developed utilizing the following seven dental landmarks: (1) the mid-incisal

* Phillips Electronic Equipment Ltd., Winnipeg, Manitoba, Canada
† Ruscom Logics Limited, Rexdale, Ontario, Canada
‡ IBM, Don Mills, Ontario, Canada

Table 1 Classification of sample (according to Angle's concept of occlusion)

Normal Occlusion			27
Class I	Non-Extraction	9	23
	Extraction	14	
Class II Div 1	Non-Extraction	10	32
	Extraction	22	
Class II Div 2	Non-Extraction	5	9
	Extraction	4	
Class III	Non-Extraction	1	3
	Extraction	2	
		Total	94

Fig 1 Seventy-seven dental landmarks identified on both maxillary and mandibular arches.



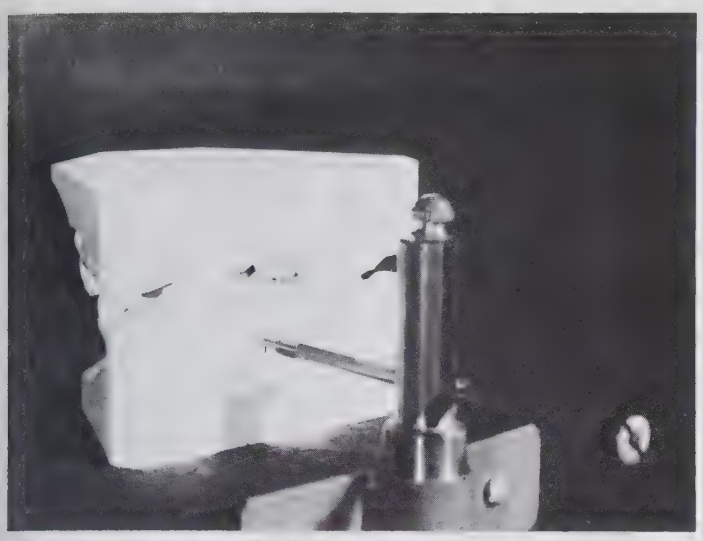


Fig 2 Mechanical transfer device.

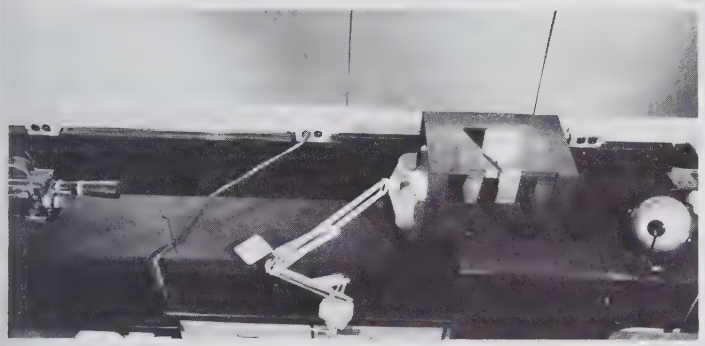


Fig 3 Overview of standardized photographic setup.

Fig 4 Ruscom Logistics strip chart digitizer and IBM keypunch machine.

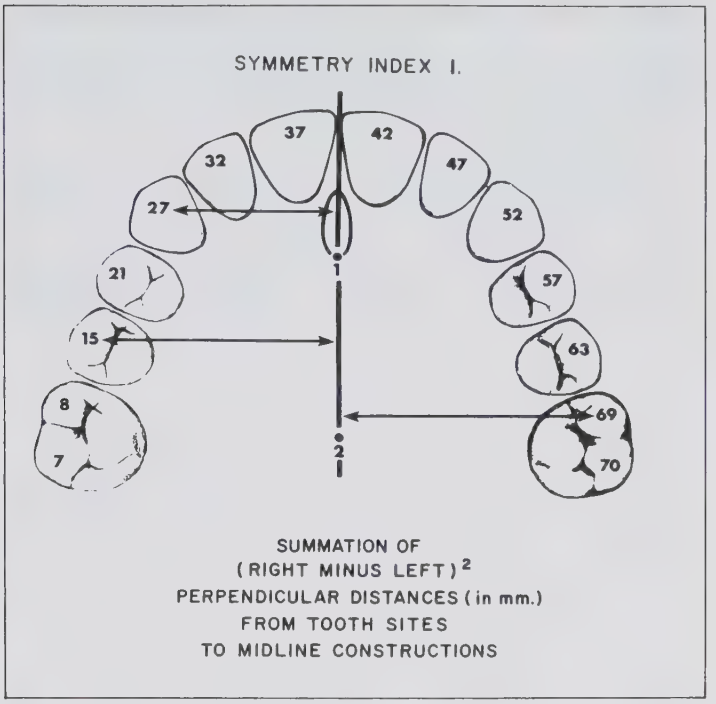


Fig 5 Symmetry Index 1: maxillary dental arch.

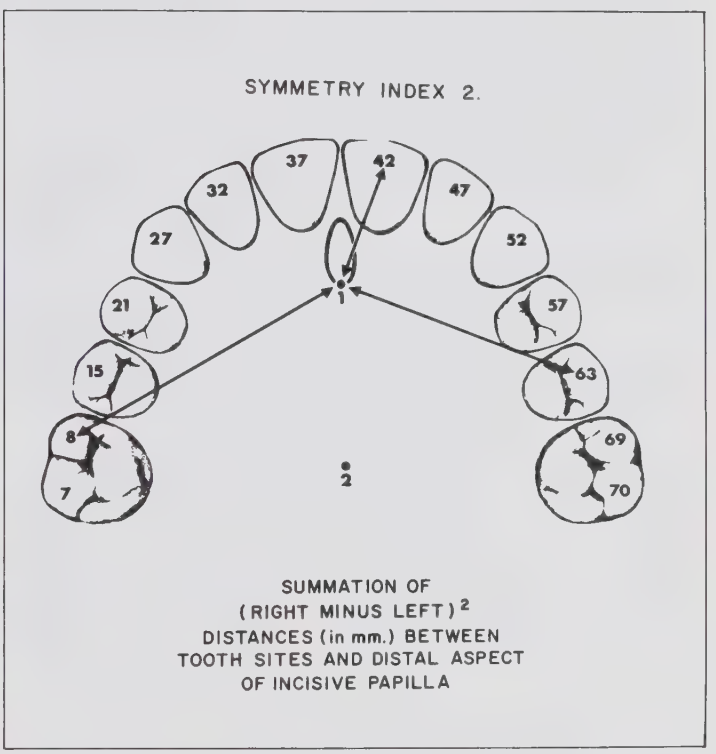


Fig 6 Symmetry Index 2: maxillary dental arch.

edge of the central incisors, (2) the mid-incisal edge of the lateral incisors, (3) the cusp tip of the cuspids, (4) the buccal cusp tip of the first premolars, (5) the buccal cusp tip of the second premolars, (6) the mesio-buccal cusp tip of the first molars, and (7) the disto-buccal cusp tip of the first molars. The maxillary and mandibular dental arches were examined independently.

Symmetry Index 1: Defined as the summation (right minus left)^2 of the perpendicular distance from the tooth sites to the constructed midlines (Fig 5).

Symmetry Index 2: Defined as the summation (right minus left)^2 of the linear distances from the tooth sites to the distal aspect of the incisive papilla or its corresponding point on the mandibular arch (Fig 6).

Symmetry Index 3: Defined as the summation (right minus left)^2 of the angular dimension from the tooth sites to the midline construction utilizing the distal aspect of the incisive papilla or its corresponding point on the mandibular model as the vertex of the angle (Fig 7).

To quantify the degree of asymmetry, the Symmetry Index values were computed with index values approximating zero, indicating near perfect symmetry of the dental

arches. The purpose of computing the square of each index (right minus left) was twofold: (1) to eliminate any negating sidedness influence at the individual sites, thus recording the total maximum asymmetry value and (2) to deal with only positive values.

Attempting to assess the sidedness of the dental arch, the three Symmetry Index computations were repeated, calculating the summation of (right minus left) for the seven dental landmarks. A positive value indicated an overall right side asymmetry bias and negative symmetry value indicated a left side asymmetry bias.

Arch form

A curve fitting procedure was employed on the 27 "acceptable"/normal occlusion samples. Two curves were attempted: the first consisting of the 14 dental landmarks utilized in the Symmetry Index computations, and the second utilizing points representing the facial periphery of the dental units mesial to and including the first permanent molars. Mathematical curves ranging from the equation of the parabola to polynomial equations to the sixth power were "fitted" to this "acceptable"/ normal occlusion sample. The curve fitting procedure was performed utilizing an SPSS (Statistical Package for the Social Sciences) multiple regression program.

Statistical treatment of the data

The data were processed by the IBM 360-65 computer at the University of Manitoba. The maxillary and mandibular occlusal views were analyzed, utilizing the coordinate analysis program of Cleall and Chebib.[43]

The values obtained for the Symmetry Indices of the "acceptable"/ normal occlusion sample as well as the pre-orthodontic treatment group sample were subjected to an analysis of variance program. To assess the results of orthodontic treatment and any relapse tendency in the post-retention period, the values computed for the three stages of treatment for the malocclusion groups, were subjected to a mixed analysis of variance program which produced "F" values for the malocclusion group by stage of treatment interaction. When required, the results were further evaluated by use of a multiple range test.

Error of the method

The error of the method was evaluated by marking, mounting, photographing and then subsequently digitizing five sets of model records on three separate occasions and comparing selected linear and angular results for accuracy. The linear distances were found to be accurate within ± 0.1 mm and the angular dimensions were accurate within ± 1.5°, with 95 per cent certainty.

Results

Dental arch asymmetry

Highly significant asymmetries at the one per cent confidence level for both arches and for all three Symmetry Indices were noted in both the "acceptable"/normal occlu-

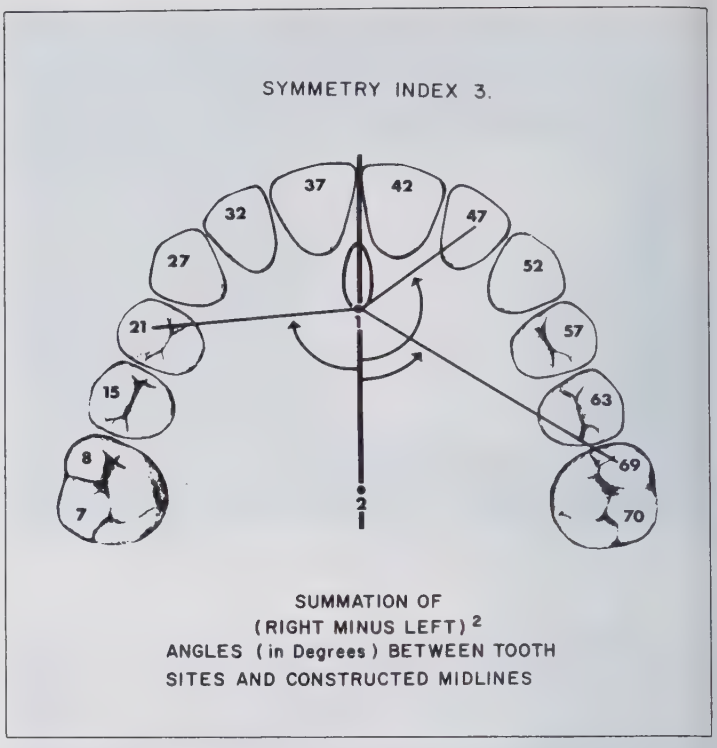
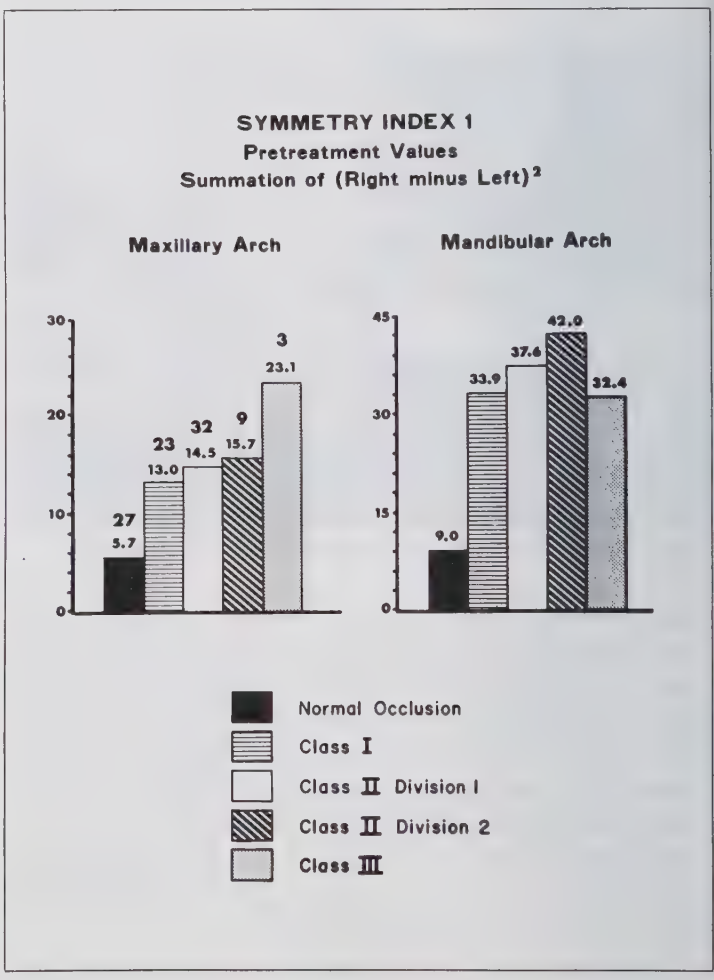


Fig 7 Symmetry Index 3: maxillary dental arch.

Fig 8 Graphic representation of values for Symmetry Index 1 for both maxillary and mandibular arches, comparing the "acceptable"/normal occlusion sample and the pre-orthodontic treatment sample, divided according to Angle's concept of occlusion.



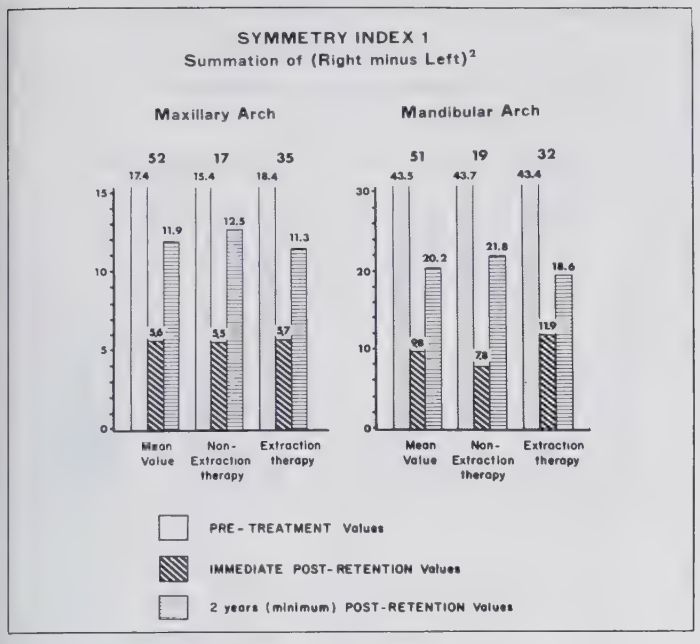


Fig 9(a)

Fig 9 Graphic representation of Symmetry Index 1 values for both maxillary and mandibular arches, comparing the three stages of treatment for (a) those cases made more symmetrical, and (b) those cases made more asymmetrical during active treatment.

Fig 9(b)

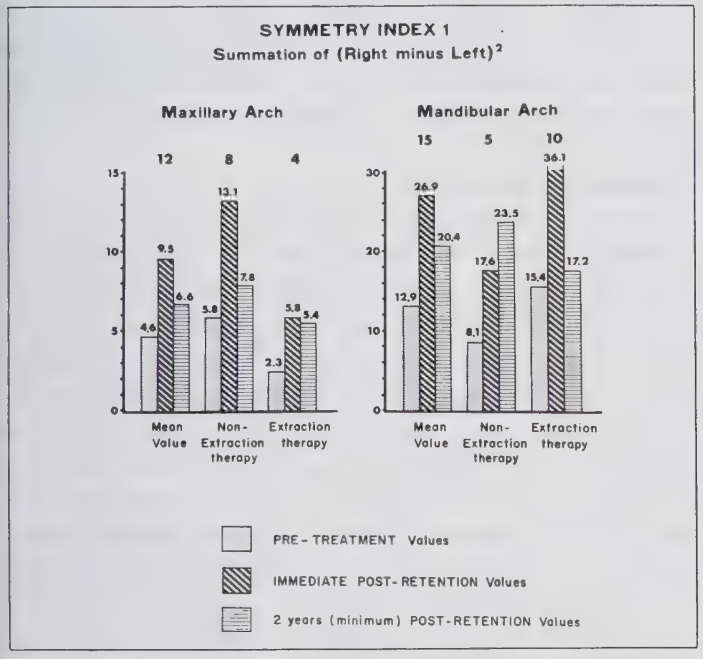


Fig 10 The number of cases expressed in per cent which tended to return toward their pre-treatment values in the post-retention period for both maxillary and mandibular arches for the three Symmetry Indices.

Trend to Return to Pre-treatment Values (in %)
Summation (Right minus Left)²

	Maxillary Arch	Mandibular Arch
Symmetry Index 1	76.1	83.3
Symmetry Index 2	78.8	77.6
Symmetry Index 3	74.3	78.8

sion and the pre-treatment malocclusion groups, with the malocclusion group being most affected. The results of the analysis of variance for Symmetry Index 1 comparing the "acceptable"/normal occlusion and the pre-treatment malocclusion group values are illustrated in Fig 8. Further statistical analysis however, utilizing a multiple range test, indicated that the malocclusion groups did not differ significantly from each other because of the high standard deviations. It was then concluded that dental arch asymmetry is randomly distributed and independent from Angle's malocclusion classifications.

When the stages of treatment of the malocclusion group were analyzed, it was noted that during active treatment one of two changes were effected in the symmetry of the dental arch. In approximately 84 per cent of the sample, the dental arches were made more symmetrical, while in 16 per cent the dental arches were made increasingly asymmetrical during the active treatment period. In order that these two groups would not have a negating influence on each other they were examined separately. The groups were further sub-divided according to whether an extraction or non-extraction therapy procedure had been followed during active orthodontic treatment.

The trends for the stage of treatment values were consistent for all three Symmetry Indices and for both arches, in that the dental arch asymmetry tended to return toward the pre-treatment asymmetry value in the post-retention period. Specifically, as illustrated in Fig 9(a), the Symmetry Index values demonstrated that the pre-treatment mean values differed from the immediate post-retention value at the 0.1 per cent confidence level. Also, the immediate post-retention values differed from those values obtained from records a minimum of two years post-retention at the one per cent significance level for both the maxillary and mandibular arches. This trend was also consistent for those cases in which, during treatment, the dental arch was made more asymmetrical (Fig 9(b)).

Regardless of the Symmetry Index, the higher order extraction/ non-extraction therapy by stage interactions were not statistically significant. This indicated that extraction per se did not affect the degree of post-treatment symmetry stability.

The data were evaluated to ascertain the percentage of cases which tended to return toward their pre-treatment values in the post-retention period. It was found, for both arches, maxillary and mandibular, and for all three Symmetry Indices, that more than 70 per cent of the cases demonstrated this trend to return toward their pre-treatment values in the post-retention period (Fig 10).

The mean values representing the sidedness of the dental arches for both the maxillary and mandibular arches for Symmetry Index 1 are illustrated in Fig 11. The results indicated that asymmetries were randomly divided according to right and left side biases.

Arch form

Comparison of the varying curves, ranging from polynomial equations to the sixth power to the equation for

parabola, indicated that the parabolic equation $Y = B_2X^2 + B_1X + B_0$ had the best "goodness of fit" to the "acceptable"/normal occlusion samples for both the maxillary and mandibular dental arch forms. The values for the constants, B_2, B_1 and B_0 for each of the 27 "acceptable"/ normal occlusion group samples, for both the maxillary and mandibular arches, may be found in Tables 2(a) and (b) and 3(a) and (b). The individual "acceptable"/ normal occlusion sample values were then combined to compute constant values for a mean curve representing the entire sample. The following mathematical curves were obtained, representing the maxillary and mandibular arches for the arch form described by the mid-incisal edge and bucal cusp tip locations.

(i) Mean mathematical description of "best fit" for the maxillary dental arch:

$$Y = 0.04509\,X^2 - 1.82908\,X + 25.08742 \quad \text{Multiple R } 0.96559$$

(ii) Mean mathematical description for the "best fit" for the mandibular dental arch:

$$Y = 0.05025\,X^2 - 1.96241\,X + 29.76977 \quad \text{Multiple R } 0.96435$$

Scattergrams of the curve fitting procedure are illustrated in Figs. 12(a) and (b) for the maxillary and mandibular arches, respectively.

The following mathematical formulas represent the maxillary and mandibular arch form identified by the facial periphery of the dental units.

(i) Mean mathematical description of "best fit" for the maxillary dental arch:

$$Y = 0.03856\,X^2 - 1.56448\,X + 21.66271 \quad \text{Multiple R } 0.96777$$

(ii) Mean mathematical description of "best fit" for the mandibular dental arch:

$$Y = 0.03771\,X^2 - 1.47675\,X + 24.29334 \quad \text{Multiple R } 0.96829$$

Scattergrams of the curve fitting procedure are illustrated in Figs. 13(a) and (b) for the maxillary and mandibular arches respectively. It should be noted that a multiple R value around 0.96 demonstrates that the mean mathematical curves have fitted the sample dental arches almost perfectly.

Discussion

General considerations

The evidence from this study tended to support previous works cited in the literature review with regard to post-treatment stability. The main trend was that change as a result of orthodontic treatment tended to return toward the pre-treatment values in the post-retention period. While generally true, this statement somewhat oversimplifies the problem. Riedel's theorum of retention which states that "teeth that have been moved tend to return to their former positions"[44] is highly substantiated by the evidence of this investigation. Because of the nature of the study performed on orthodontic dental casts, however, it is not possible to discern between the influence of the musculature, the apical base, the transseptal fibres, bone morphology or other influencing factors on the relapse tendency observed.

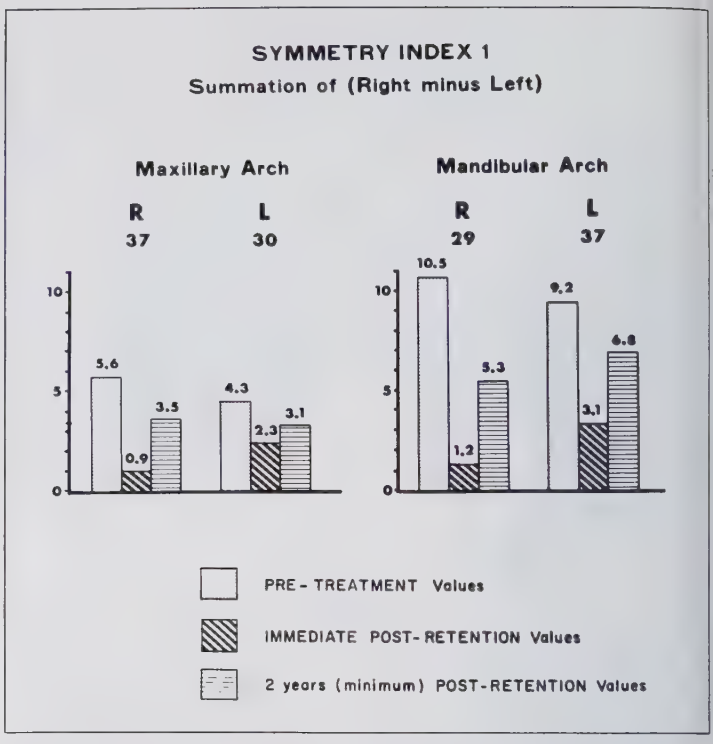


Fig 11 Graphic representation of Symmetry Index 1 values for both maxillary and mandibular arches at the three stages of treatment with the sample divided according to pre-treatment right and left side biases.

Dental arch asymmetry

The use of the midpalatal raphe as a reproducable axis of symmetry concurs with its utilization by most investigators of dental arch asymmetry.[3,5,6,8-10, 45] It can be argued, however, that the soft tissue midpalatal raphe does not necessarily accurately represent the midpalatal suture. The utilization of the midpalatal raphe is felt to be much superior to the use of a constructed midline, the landmarks of which are selected from the occlusal surface of the dental units. The finding that the pre-treatment malocclusion group values as well as the "acceptable"/normal occlusion sample demonstrated significant asymmetries concurs with the findings of others.[3,5,6,8-10, 46] The present results, however, are in direct contrast to those of Wahlig[47] who concluded that the dental arch is generally a symmetrical structure, although the latter's landmarks were based upon a midline computed from the dental arch itself. The results illustrating asymmetry are consistent with the observation of Lundstrom,[3] in which he stated that symmetry is but "a theoretical concept which is a principle of biology which is applicable to large numbers but seldom, if ever, to the individual organism".

Dental arch asymmetry was found to be randomly distributed and independent from Angle's malocclusion classifications. The result is, in part, expected in that the criteria of Angle's concept of occlusion are based on antero-posterior relationships of the dental structures of the maxilla to the mandible and have no input from the coronal or lateral dimension.

Table 2 Multiple R and constant values derived from curve fitting procedure for the facial periphery of tooth surface locations of (a) the maxillary arch, and (b) the mandibular arch

DENTAL ARCH FORM - "ACCEPTABLE" OCCLUSION SAMPLE

(Mid-Incisal Edge and Buccal Cusp Tips)

Curve Fitting where $Y = B_2X^2 + B_1X + B_o$

Maxillary Arch

Subject No.	Multiple R	B_2	B_1	B_o
1	0.98930	0.04833	-2.00022	26.76209
2	0.98423	0.04294	-1.87832	25.52385
3	0.99706	0.05319	-2.15845	28.07801
4	0.98884	0.04372	-1.76513	24.00539
5	0.98466	0.04835	-2.05920	29.20632
6	0.99131	0.04836	-1.86225	22.90585
7	0.98380	0.05015	-1.98685	24.99134
8	0.99177	0.05428	-2.03937	25.22044
9	0.98786	0.04647	-1.92704	23.84554
10	0.98481	0.04821	-1.89739	25.23073
11	0.97772	0.04934	-2.07613	27.40839
12	0.99485	0.04938	-2.05922	30.28664
13	0.98372	0.04335	-1.78698	24.76462
14	0.99152	0.04096	-1.61120	22.47616
15	0.97959	0.05462	-2.11442	25.08713
16	0.98737	0.03939	-1.56538	21.59507
17	0.99402	0.04236	-1.77893	23.36226
18	0.99088	0.04106	-1.69489	24.40137
19	0.98963	0.04921	-1.98838	25.01361
20	0.98624	0.05078	-2.06428	26.94658
21	0.99484	0.04615	-1.84877	23.70091
22	0.97174	0.05105	-2.06644	25.86710
23	0.98707	0.04388	-1.75905	23.94703
24	0.98161	0.04914	-2.01937	25.33876
25	0.99616	0.04620	-1.85297	26.70531
26	0.98541	0.04364	-1.79424	24.62306
27	0.98641	0.03894	-1.54135	21.68578

(a)

DENTAL ARCH FORM - "ACCEPTABLE" OCCLUSION SAMPLE

(Mid-Incisal Edge and Buccal Cusp Tips)

Curve Fitting where $Y = B_2X^2 + B_1X + B_o$

Mandibular Arch

Subject No.	Multiple R	B_2	B_1	B_o
1	0.99241	0.05539	-2.01794	28.07591
2	0.98027	0.04536	-1.70145	25.87330
3	0.99685	0.06327	-2.43027	33.89636
4	0.98965	0.04808	-1.89348	30.22716
5	0.99142	0.05350	-2.16720	33.47726
6	0.99081	0.05590	-2.31514	32.53942
7	0.98963	0.05152	-1.96090	29.00254
8	0.99221	0.06979	-2.81208	36.82884
9	0.98541	0.05475	-2.13225	29.18929
10	0.99159	0.05252	-2.02767	31.71157
11	0.98550	0.05428	-2.11711	31.04200
12	0.99638	0.05447	-2.12038	33.17098
13	0.99512	0.04748	-1.90557	30.71697
14	0.98367	0.04694	-1.84232	28.03361
15	0.98264	0.06432	-2.59677	35.73863
16	0.98688	0.04391	-1.72326	25.66242
17	0.99682	0.04791	-1.87984	27.59105
18	0.99330	0.04403	-1.73551	28.10031
19	0.98684	0.05420	-2.14236	30.21585
20	0.99349	0.05405	-2.07349	30.88999
21	0.99117	0.05236	-2.06678	30.15088
22	0.97531	0.05648	-2.17417	29.54306
23	0.99182	0.05059	-1.92493	27.65887
24	0.98106	0.05419	-2.04841	27.45066
25	0.99789	0.05149	-2.00676	31.89404
26	0.99614	0.04722	-1.86467	29.61587
27	0.98755	0.04361	-1.69267	25.33161

(b)

Table 3 Multiple R and constant values derived from curve fitting procedure for the facial periphery of tooth surface locations of (a) the maxillary arch, and (b) the mandibular arch

DENTAL ARCH FORM - "ACCEPTABLE" OCCLUSION SAMPLE

(facial periphery of tooth surfaces)

Curve Fitting where $Y = B_2X^2 + B_1X + B_o$

Maxillary Arch

Subject No.	Multiple R	B_2	B_1	B_o
1	0.98953	0.03862	-1.59715	22.29751
2	0.98799	0.03601	-1.56733	21.60851
3	0.99192	0.04562	-1.84980	23.96090
4	0.98721	0.03649	-1.45804	20.72022
5	0.98310	0.04234	-1.79676	25.36752
6	0.99083	0.04059	-1.59061	20.08193
7	0.98166	0.04280	-1.71330	21.92477
8	0.98970	0.04641	-1.74803	21.70386
9	0.98671	0.03832	-1.57761	19.77523
10	0.98483	0.04246	-1.67083	22.81427
11	0.98190	0.03987	-1.68446	23.26145
12	0.99326	0.04174	-1.73306	25.75782
13	0.98081	0.03505	-1.44598	20.98941
14	0.98671	0.03606	-1.43146	19.53452
15	0.98022	0.04382	-1.70303	21.40870
16	0.98036	0.03495	-1.40164	19.49108
17	0.99561	0.03722	-1.55099	20.37108
18	0.98664	0.03563	-1.46182	20.83140
19	0.98737	0.04254	-1.72823	21.95883
20	0.98521	0.04418	-1.78651	23.31655
21	0.98901	0.04071	-1.64736	21.10137
22	0.97499	0.04106	-1.67523	22.19842
23	0.98060	0.03852	-1.53409	20.48874
24	0.98441	0.04256	-1.74386	22.24452
25	0.99156	0.03979	-1.57769	22.50670
26	0.98167	0.03524	-1.45277	20.91695
27	0.98003	0.03450	-1.37366	19.48927

(a)

DENTAL ARCH FORM - "ACCEPTABLE" OCCLUSION SAMPLE

(facial periphery of tooth surfaces)

Curve Fitting where $Y = B_2X^2 + B_1X + B_o$

Mandibular Arch

Subject No.	Multiple R	B_2	B_1	B_o
1	0.98792	0.03922	-1.43456	21.89338
2	0.98347	0.03555	-1.34863	21.38373
3	0.99571	0.04290	-1.66339	26.44280
4	0.99085	0.03383	-1.32990	24.35663
5	0.99550	0.04055	-1.63393	27.55197
6	0.99220	0.04228	-1.77535	27.34373
7	0.98953	0.03952	-1.50782	24.04557
8	0.98884	0.04950	-2.03184	29.42420
9	0.98465	0.04042	-1.60629	24.03168
10	0.98899	0.03881	-1.51734	26.19180
11	0.97916	0.03938	-1.55927	25.36100
12	0.99165	0.04037	-1.57244	26.61908
13	0.99013	0.03704	-1.49010	25.79947
14	0.98129	0.03518	-1.41026	23.96176
15	0.97511	0.04225	-1.68862	25.98907
16	0.97877	0.03207	-1.26288	20.53171
17	0.99905	0.03571	-1.39137	22.26273
18	0.99271	0.03552	-1.40104	24.46990
19	0.98688	0.03795	-1.52015	24.25544
20	0.98794	0.04003	-1.51699	24.47841
21	0.99058	0.04012	-1.57098	24.59525
22	0.98391	0.04109	-1.57761	24.00353
23	0.98690	0.03694	-1.40743	21.95549
24	0.98767	0.04077	-1.54173	22.55324
25	0.99664	0.03831	-1.48749	25.81605
26	0.99028	0.03706	-1.46598	24.89586
27	0.97943	0.03183	-1.23706	20.26734

(b)

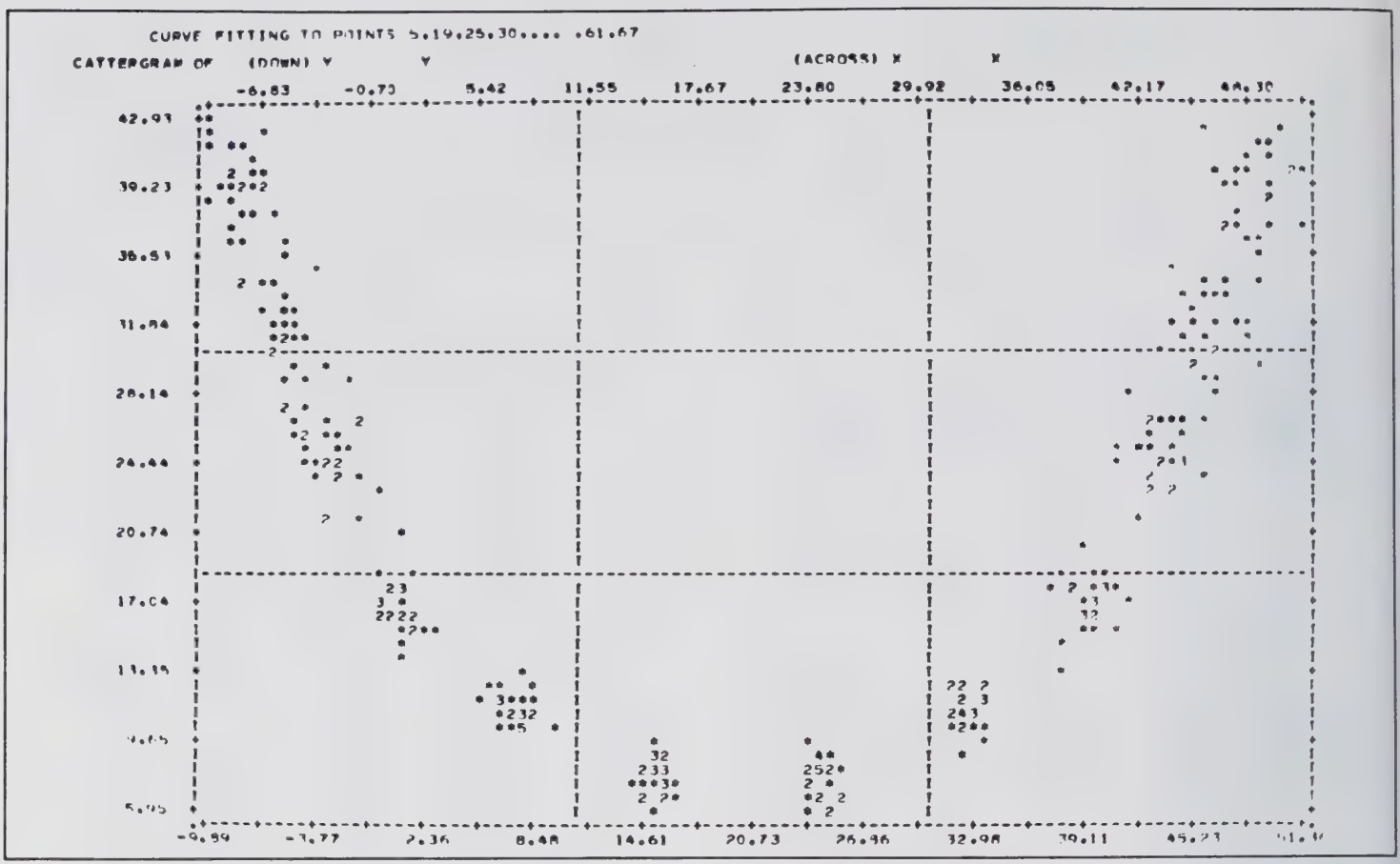
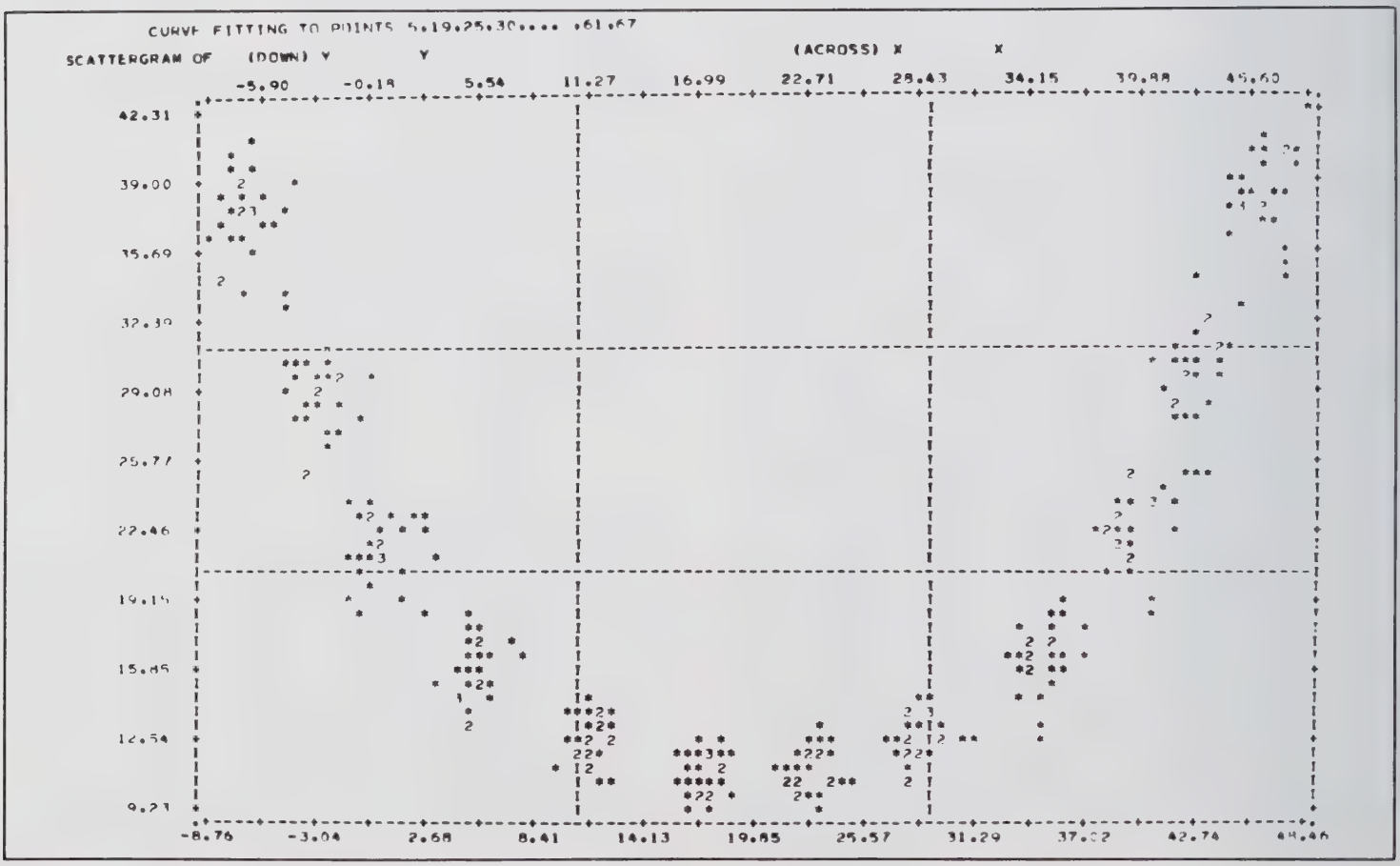


Fig 12(a)

Fig 12 Scattergrams of (a) the maxillary arch, and (b) the mandibular arch curve fitting procedures representing the mid-incisal edge and buccal cusp tip locations.

Fig 12(b)



The observation that the dental arch asymmetry of 84 per cent of the sample was improved is likely the result of the utilization of arch wire matrix guides and preformed symmetrical arch wires. Those cases in which the dental arches were made increasingly asymmetrical are more difficult to explain. It is possible that the pre-treatment dental arches that were originally fairly symmetrical were rendered asymmetrical as a result of poor mechano-therapy. Furthermore, these cases may go unnoted because dental arch asymmetry is not a criterion upon which one categorizes the success of orthodontic treatment. It is obvious, nevertheless, that changes have been effected in the symmetry of dental arches.

The fact that the original asymmetry tended to return toward its pre-treatment value in the post-retention period is consistent with the findings of other variables in orthodontic treatment. An explanation was suggested by Brodie[48,49] who illustrated the asymmetry of the alveolar process which supports the dental units. Superimposed upon the generally observed tendency for teeth to return toward their original positions in the post-retention period, is the tendency of the supporting alveolar bone complex to continue to grow in its asymmetrical form, carrying with it the dental units. Other reasons have been postulated to account for the asymmetrical dental arch form including asymmetrical muscle patterns and pillowing habits.[7]

The attempt in this investigation to analyze the suggestion of Tirk,[50] Reitan[51] and Riedel[44,52] that ''malocclusions should be over-corrected as a safety factor'' met with little success in that very few cases under investigation had been over-corrected relative to dental arch asymmetry. Most of the investigations of dental arch asymmetry had been restricted to the maxillary arch. This is understandable, in that the mandibular arch does not present an easily definable baseline for measurement. Further to this, adequate transfer devices of the maxillary midline axis of symmetry had not been developed. Although the transfer method utilized in this investigation proved to be adequately reproduceable, any transfer method is subject to the same criticisms and inaccuracies because the transfer technique requires the models to be positioned so that the teeth are in occlusion. Nevertheless, a more reliable method has yet to be developed.

Another interesting finding of this investigation was that dental arch symmetry stability was independent of extraction procedures as an adjunct to orthodontic treatment. An explanation may be that the decision to extract or not to extract teeth in a given case is made on other factors such as the magnitude and degree of crowding, the relationship of the dental units to the apical base, profile, age, amongst other criteria, and dental arch asymmetry, except in grossly asymmetrical cases, is not considered as a factor upon which the extraction of teeth would be predicated.

Arch form

It was the original intent of this study to investigate the parabola, the ellipse, and the catenary curve as well as polynomial equations to the sixth power. However, when the data were subjected to the mathematical curves of the parabola and polynomial equations ranging to the sixth power, it became obvious that the parabola have a very high ''goodness of fit'' to both arches and to both curves: the first, through the mid-incisal edges and of the buccal cusp tips and the second, a curve representing the facial periphery of the dental units. In orthodontics, concern is directed to the outer curve which represents the facial surfaces of the teeth, for it is here that the orthodontic appliances apply forces intended for tooth movement. The results of this investigation do not concur with the findings of Neilans[23] or Currier.[20,21] It is suggested that the basic difference in the results of other investigations and this study is that second and third permanent molars were not considered in the analysis of dental arch form. Brodie[48,49] suggested that the sphincteric action of the buccinator and the superior constrictor muscles of the pharynx on the posterior teeth affected the distal segment of the dental arch form in the maxillary arch such that they would not form straight lines but rather start to recurve. It is this recurving attributed to the buccal pressures affected by the oral musculature which accounted for the suggestion of the catenary curve[7,8,36,53] and the ellipse.[19-21,23] This author, however, tends to concur with the suggestion of Musich and Ackerman[54] who suggest that if the arch form is only going to be assessed from the first molar to the contralateral first molar, it is probably not important whether a catenary, ellipse or parabolic curve is chosen as the ''mean curve''.

This study did not include the analysis of the ''goodness of fit'' of the ellipse or the catenary curve. In addition to these, the possibility exists that some as yet untested curvilinear configurations might provide an even better ''goodness of fit''. The data of this investigation suggest that because of the very high ''goodness of fit'', the parabola is a viable starting point for clinical orthodontics.

The results of this investigation also differ from those reported by Currier[20,21] and Neilans[23] who suggested that little variation is allowed in selection of points before the curve being tested becomes a different curve. The mean values of the ''acceptable''/normal occlusion sample indicated that the differences between the mathematical curves described for the mid-incisal edge and buccal cusp tip locations as compared to the curve representing the facial periphery of the dental units, differed only at the third significant figure of the multiple regression value. These differences were not only statistically insignificant but, more importantly, have no clinical significance.

Few studies in the literature have reported on changes in the dental arch form with treatment. It would be of great interest to apply the equation of the parabola to study changes in the dental arch form as a result of treatment and evaluate the stability of changes affected. Riedel[44] was referring to linear dimensions, specifically intercanine and intermolar width, when he suggested in one of his theorums of retention that ''arch form, particularly the mandibular arch, cannot be permanently altered by appliance therapy.''

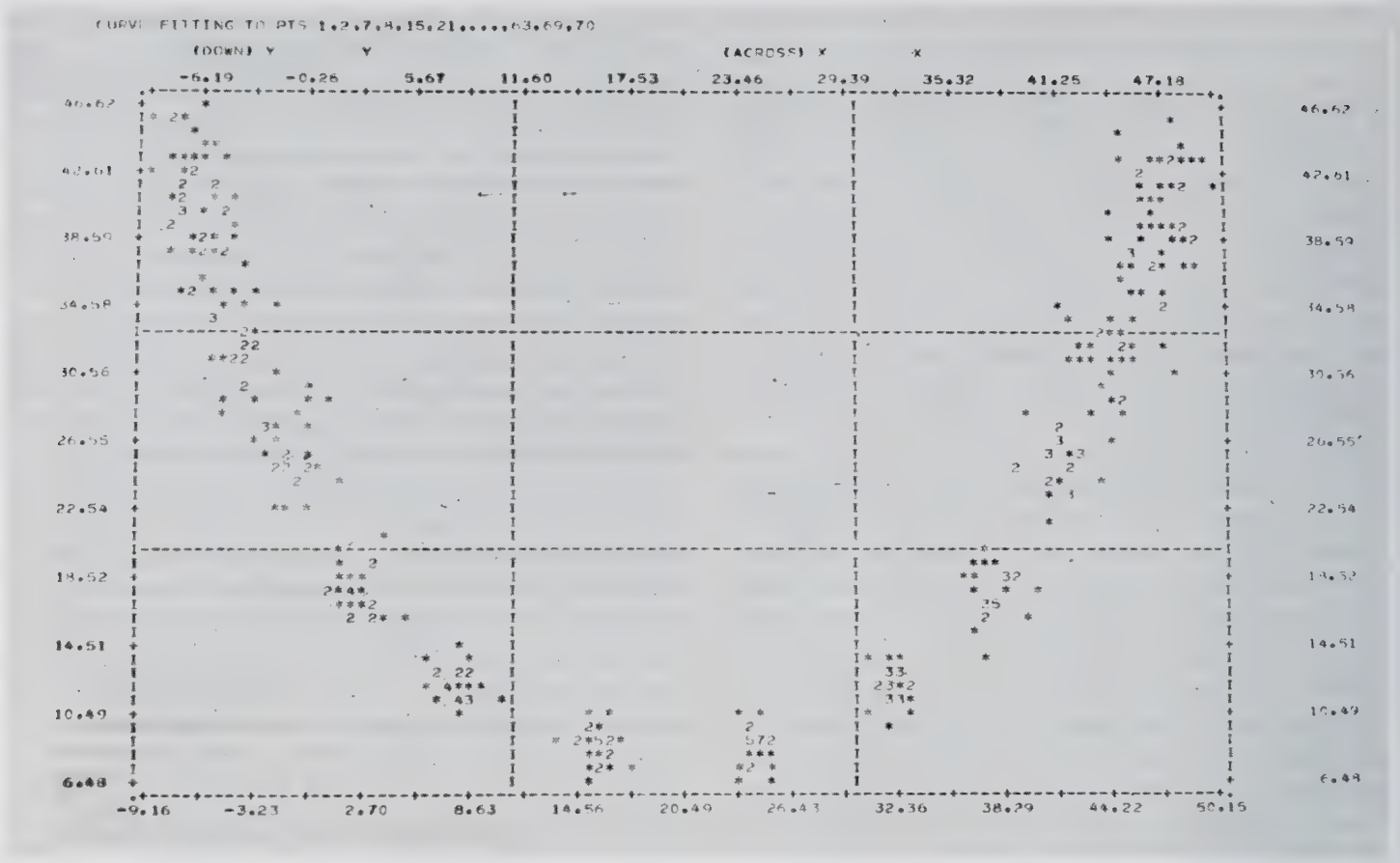
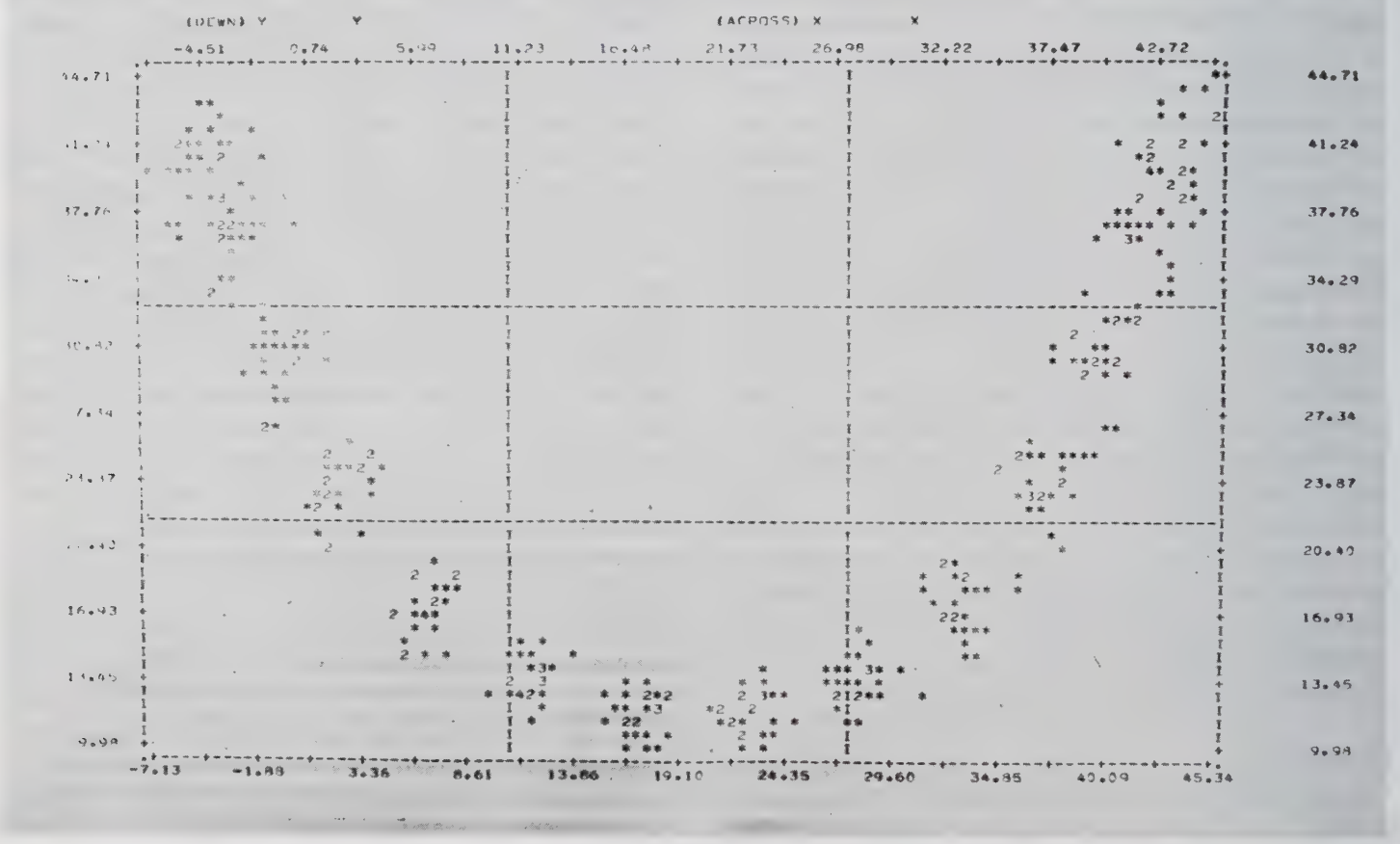


Fig 13(a)

Fig 13 Scattergrams of (a) the maxillary arch, and (b) the mandibular arch curve fitting procedures represented by the facial periphery of the dental units.

Fig 13(b)



It would be very interesting to test this hypothesis utilizing the equation for the parabola on the treated cases of this investigation and compare the results with those of Shapiro.[55]

It is important to note the comment advanced by Hawley[27] when he cautioned against the strict use of any method in determining arch form and suggested that it serve as a guide and that each case is individual unto itself and must be treated accordingly.

The results suggest that the degree of lack of absolute fit to the mathematical curves is another expression of the lack of perfect symmetry of dental arch form previously illustrated in this study.

Conclusions

From subjective and statistical analysis of the data, the following conclusions emerged: (1) three symmetry indices were devised to quantitatively describe dental arch asymmetries, (2) dental arch asymmetry is independent from and randomly distributed among Angle's malocclusion classification, (3) the dental arches of the untreated "acceptable" / normal occlusion sample were not perfectly symmetrical and differed statistically from the pre-orthodontic treatment case values which were more severely affected, (4) pretreatment dental arch asymmetries tend to return in the post-retention period after the retaining devices have been removed. The extraction or non-extraction of teeth as an adjunct to orthodontic therapy seems to have no consistent effect on post-treatment dental arch asymmetry stability, (5) the analysis of arch form based on mathematical geometric configurations suggested that the parabola had a very high "goodness of fit" to the dental arch form of both the maxillary and mandibular dental arches for both curves investigated. The first, through the mid-incisal edge and buccal cusp tip locations, and the second, representing the facial periphery of the tooth surfaces.

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OVERLAY SLIDE TECHNIQUE FOR EFFECTIVE PRESENTATIONS

Dennis B. Gilboe, DDS
David G. Drennon, BS, DDS, MS
Saskatoon, Sask.

A non-photographic method for titling and other identification requirements of 35 mm. slides, which is quick, inexpensive, and can be accomplished by unskilled personnel, is outlined. The advantages of properly illustrated slides are discussed.

A clinical intraoral slide often includes information which is extraneous to the concept being described, but necessary for visual orientation. As a result, the viewer often encounters difficulty identifying and concentrating on the intended detail of interest. Among the methods utilized to emphasize a point of interest are the use of wooden or lighted pointers, hands and fingers. Such approaches not only are distracting to the viewer, but also may obstruct vision of a portion of the slide. A simple, inexpensive technique using symbols or lettering on acetate overlays effectively eliminates these problems, resulting in more effective, professional visual presentations.

Materials and Method of Assembly

On a tabletop viewbox, the unmounted 35 mm. transparency is covered with a sheet of clear acetate* 2 mm. larger in all dimensions. Pressure sensitive lettering, numbers, arrows or lines† may then be transferred to the acetate surface in appropriate locations by burnishing with a pencil or blunt instrument. The transparency and overlay are then assembled in a plastic mount‡ for protection (Figs. 1-4).

Applications

Numerals can be routinely employed to identify size, scale, magnification, dates, time intervals, or the major steps of a procedure. They can also assist in the temporal orientation of slides demonstrating serial studies. Lettering to identify materials, instruments, manufacturers, and techniques, particularly their spelling, is helpful to the viewer. The minimum size of lettering suggested is 10 pt. Straight or curved arrows and solid or dotted lines of varying thicknesses can demonstrate specific features and relationships. Black, pressure sensitive lettering usually is most visible on clinical slides, whereas white provides greater clarity on radiographs. Figures 5-8 demonstrate various applications of the overlay technique.

A major asset of the acetate overlay procedure is that the original 35 mm. transparency remains unaltered. Thus future modifications are possible by disassembling the mount and replacing the overlay with one more suitable. The po-

* Untreated Acetate, The 3 M Co., Costa Mesa, Calif.
† Letraset, Letraset USA Inc., Bergenfield, N.J.
‡ Gepe Mounts, Sweden

Fig 1 The 35 mm. transparency is inserted in the mount slots then taped to position to prevent movement, particularly when slides are transported.

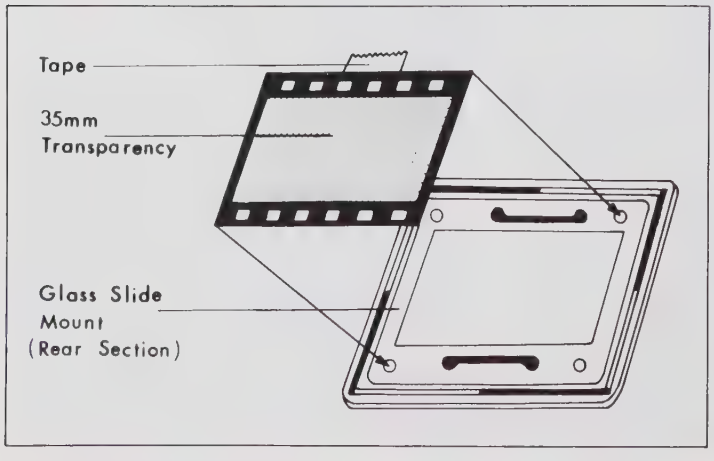
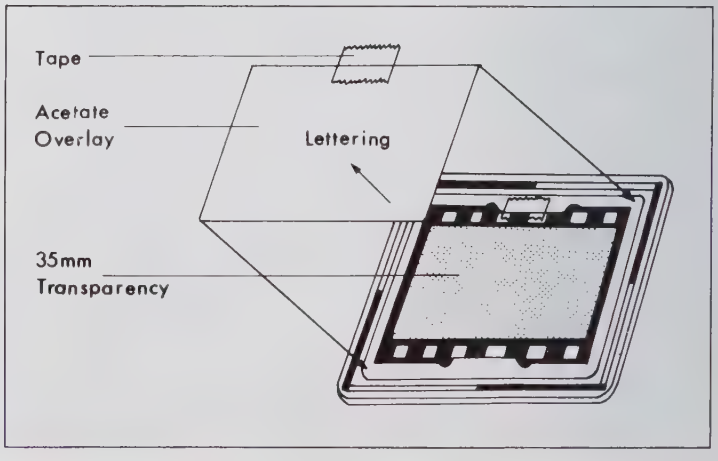


Fig 2 The acetate overlay is placed with the pressure sensitive lettering facing up, and aligned appropriately with the underlying transparency. It is then taped in position.



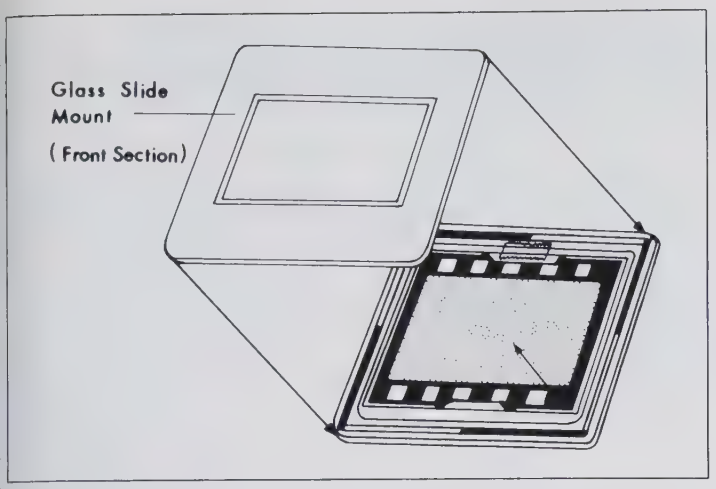


Fig 3 The top member of the slide mount is then pressed to position.

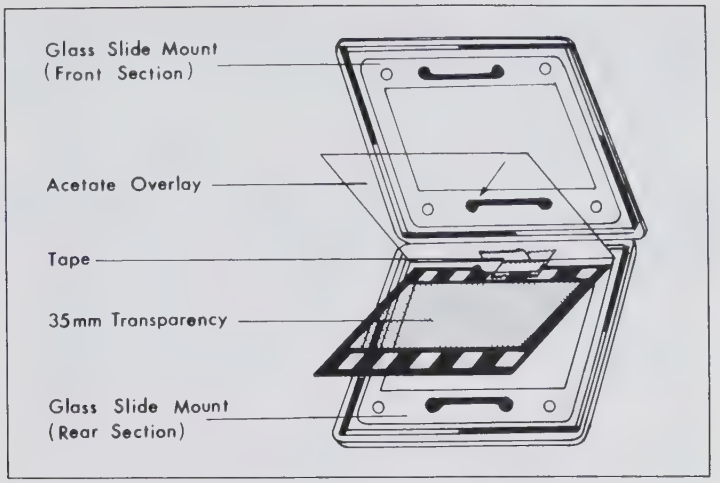


Fig 4 Exploded view of the components of the slide assembly.

Fig 5

Fig 6

Figs 5 and 6 Utilization of lettering for titles and description.

Figs 7 and 8 The use of arrows is illustrated.

Fig 7

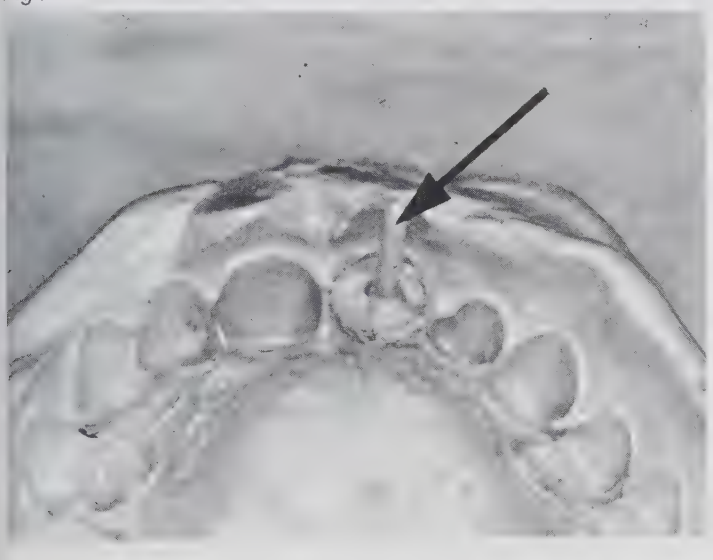


Fig 8

tential applications of identification methods are limited only by one's imagination.

Visual considerations

It is desirable to limit each slide to a single concept or association. Several simple slides rather than a complicated one should be used, especially if a subject is to be discussed at length.[1] Duplicate clinical slides allow an overlay to identify the feature of interest currently being discussed. As different aspects are described, copies of the same slide with variations in overlay information: (1) heighten interest, since the same slide is actually different, (2) provide clarity, (3) prevent pre-reading and boredom, (4) augment relationships being described verbally, (5) provide cues for the lecturer, and (6) prevent damage to slides by heat which otherwise would be left on the screen for long periods. Progressive disclosure, a series of smaller, easier to grasp segments, allows more slides with less time on the screen and better audience attention results, since each time a new slide appears the viewer must look at it and listen to the speaker.[2,3] Figures 1-3 are examples of progressive disclosure. Such an approach increases the effectiveness of presentations since the meaningfulness is directly related to the number of associations one has with concepts,[4] and this technique inherently possesses a repetitive factor.

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Dr. Gilboe is supported by a Medical Research Council of Canada Fellowship during his graduate studies.

1 Effective lecture slides. Kodak pamphlet No. S-22. Rochester, New York.
2 Planning and producing visual aids. Kodak pamphlet No. S-13. Rochester, New York.
3 Freehe, C.L. Clinical dental photography: equipment and techniques. In: Clinical Dentistry, Vol. 1 (James, W. Clark, Editor). New York, Harper and Row, 1976.
4 Nobel, C.E. Meaningfulness and familiarity. In: Verbal behavior and learning: problems and processes (Musgrave, C.N. and Musgrave, B.S., editors). New York, McGraw-Hill, 1963.

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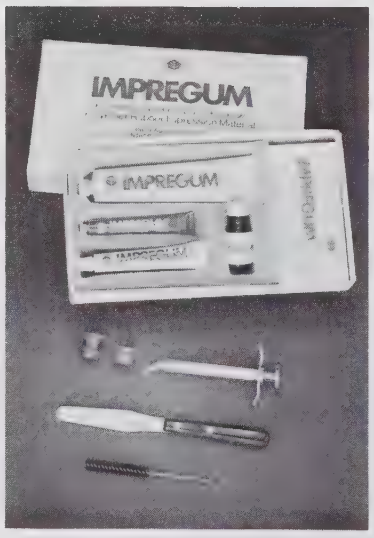

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ONTARIO — Warkworth. Dental office for rent in new medical building in underserviced rural area halfway between Belleville and Peterborough. Reply to: Mrs. Grace Dollimore, Management Committee of Warkworth Medical Centre, Warkworth, Ont., or phone (705) 924-2074.

ONTARIO — Windsor. Space available for specialist in periodontics, pedodontics or orthodontics in modern preventive oriented suburban office. Full-time hygienist on staff. Contact: Dr. Michael Malowitz, 7610 Tecumseh Road East, Suite 207, Windsor, Ont., N8T 1E9, or phone: (519) 944-2424.

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BRITISH COLUMBIA — Vandorhoff (Central British Columbia). Associate required with view to partnership if desired. Family oriented practice. Excellent hunting and fishing. Contact: Dr. Paul Collard, Box 1322, Vanderhoff, B.C. V0J 3A0, or phone: (604) 567-2656.

ALBERTA — Calgary. Associate required in preventive-oriented practice. Contact: Dr. J.T. Boulton, No. 7 Parkdale Cres. N.W., Calgary, Alta., T2N 3T8.

ONTARIO — London. Associate wanted for large general practice. Practice has had an associate for 12 years. Present owner reaching retirement age, and would sell practice within two or three years. Good opportunity for someone looking to relocate. Contact: Dr. L. V. Shankman, 714 Dundas St., London, Ontario. Phone: (519) 432-1531.

ONTARIO — Niagara Pensinsula. Associate wanted for quality, conscientious, preventive-oriented, specialty and general dentistry group practice. This is a successful established practice with ultra modern facilities. Start immediately or in June 1978. Contact: Dr. Ivan Hrabowsky, 42 St. Paul St., St. Catharines, Ont. L2R 3N4, phone: (416) 688-1500.

ONTARIO — Ottawa. Associate wanted for established group practice (three dentists, one hygienist) in modern office. Partnership will be available if philosophies are compatible. Bilingual candidate would be ideal since office is located in a bilingual area. Please send application to: Dr. Bertrand, Roy and Associates, 1207 Evans Blvd., Ottawa, Ont. K1H 7T6.

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BRITISH COLUMBIA. Dental Surgeon, returning from Australia in June, desires opportunity for associateship, partnership or purchase of practice. Preferably outside Vancouver. Reply to: Dr. C. Plouffe, 1 Smith St., Karrinyup, W.A. 6018, Australia.

BRITISH COLUMBIA — Vancouver. Young general practitioner with four years' experience in a preventive-oriented modern environment, wishes to buy a similar practice with a view to take over at the end of June. Reply to CDA Box Number 1782.

PAEDODONTIST. Aged 28, married, completing two-year hospital residency (7/1/'78). Excellent background in anaesthesia, handicapped patients, orthodontics. Private practice experience, passed N.D.E.B.'s. Desires associateship or purchasing of private practice in small community. Mountainous area preferred, but will consider any province. Contact: Dr. Gary Breen, 2171 South Commons Road, Reynoldsburg, Ohio, 43068, U.S.A., or phone: (614) 866-1391.

PAEDODONTIST. Aged 27, married, completing two year board-approved specialty program June 1978. Seeking associateship and/or partnership with a paedodontist or group. Passed Canadian National Dental Examining Board. Curriculum Vitae on request. Reply to CDA Box Number 1756.

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BRITISH COLUMBIA — Burns Lake. Dentist wanted to practise in the Village of Burns Lake, in northern British Columbia. Office space is available in a new Medical Dental Building, constructed June 77, and would suitably accommodate one or two dentists. It is located directly across from the hospital. The doctors, presently in the building, would be willing to provide anesthetic services for the dentists, either in the clinic or the hospital. This is an ideal opportunity for a young dentist, in an expanding town, in one of the most beautiful recreational areas in British Columbia. For more details contact: Gerobeco Holdings Ltd., P.O. Box 167, Burns Lake, B.C. V0J 1E0.

ONTARIO — Glifford. Dentist wanted for individual practice in new facilities at Glifford and Community Medical Centre. Apply to: Arthur C. Oehm, Box 159, Glifford, Ont., N0G 1M0 or telephone (519) 327-8397, evenings (519) 327-8307.

ALBERTA — Pincher Creek. Hygienist and certified intra-oral assistant needed immediately in modern three-dentist practice close to major city. Salary and benefits negotiable. All auxiliaries get a profit share. Please reply in writing to Box 820, Pincher Creek, Alberta, T0K 1W0 or phone: (403) 627-3290.

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CANADIAN ACADEMY OF PERIODONTOLOGY — Quebec Association of Periodontists, Annual Meeting May 26-28, Hotel L'Esterel (Laurentians) — Dr. Fermin Carranza. Information Dr. M. Stutman, 4141 Sherbrooke St. W., Suite 535, Montreal, Quebec H3Z 1B8.

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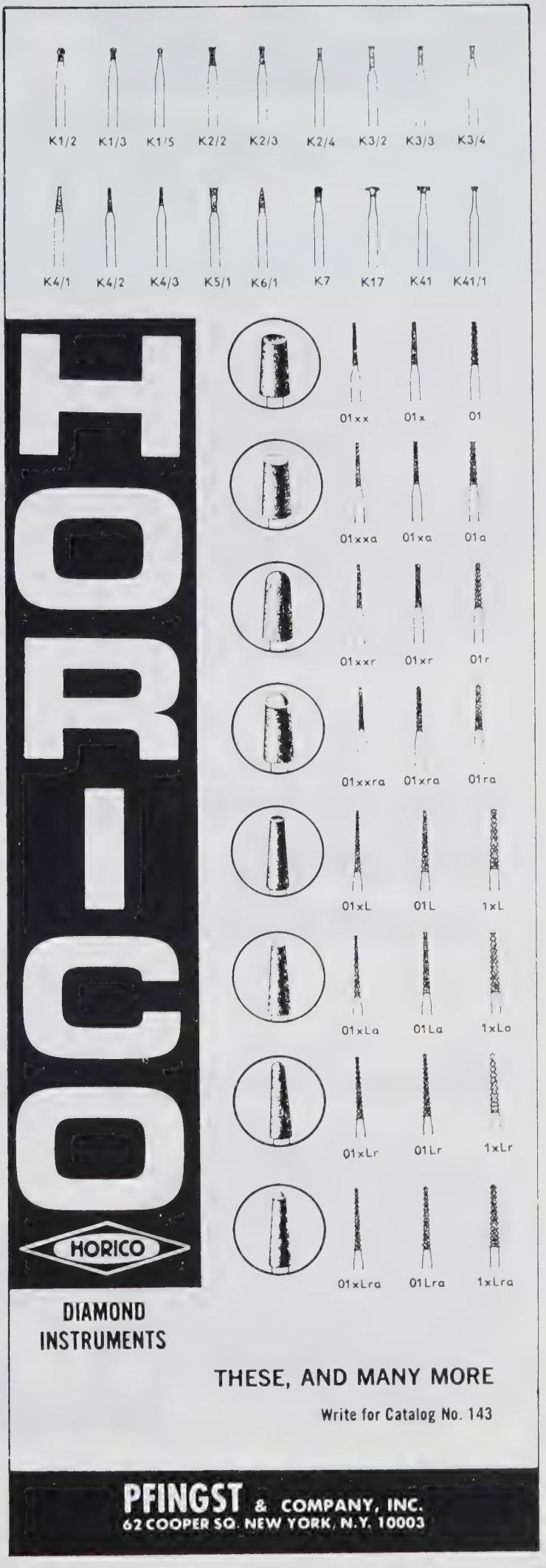

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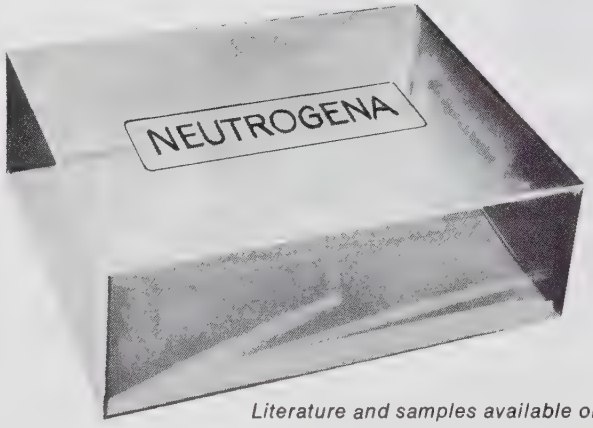

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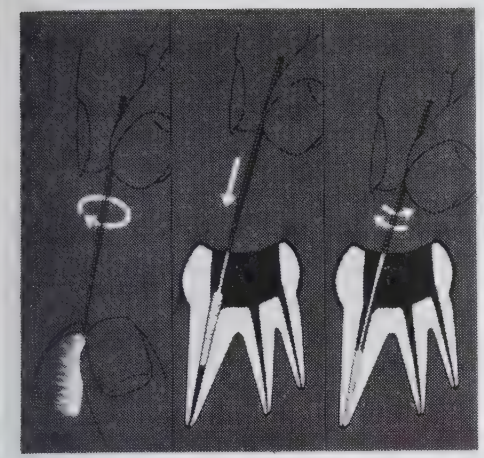

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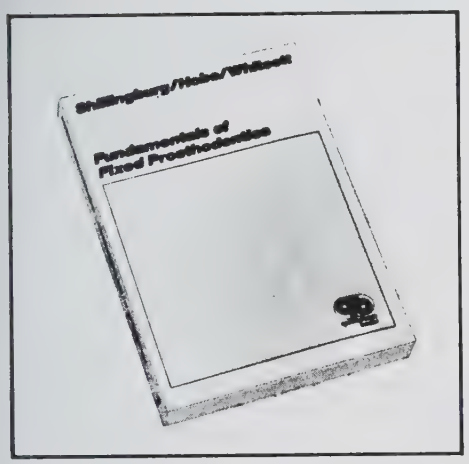

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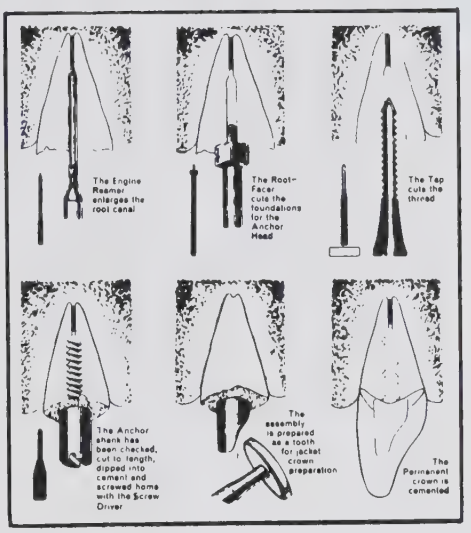

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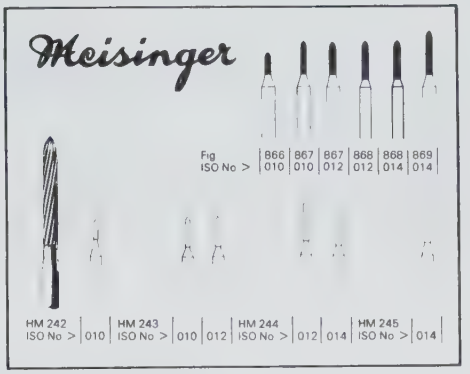

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May/Mai 1978/Volume 44/No 5

Canadian Dental Association/Association Dentaire Canadienne

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Surgical endodontics in dental curricula

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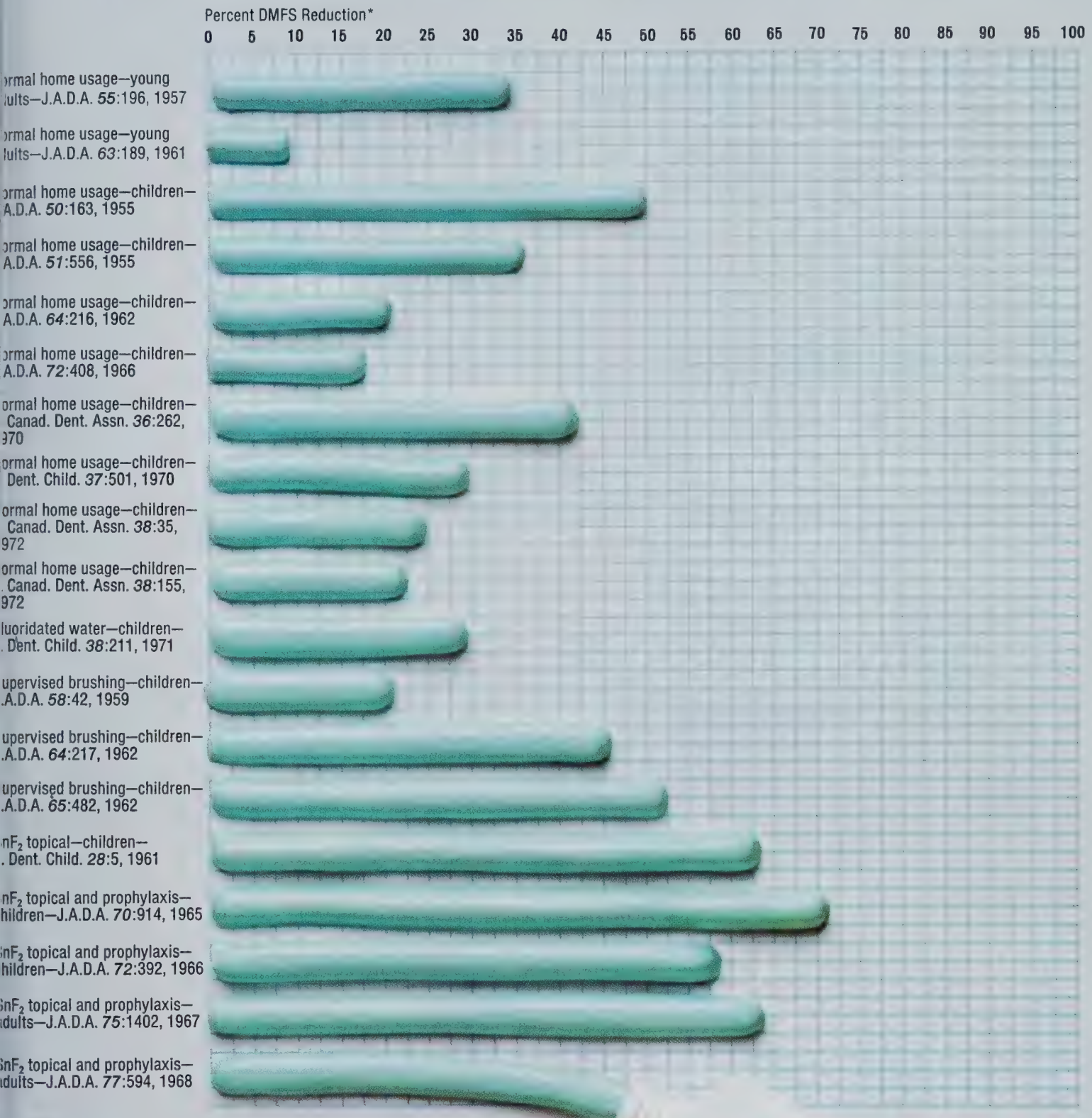

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JOURNAL

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May/Mai 1978/Volume 44/No. 5

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Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13. Contact: Dr. Ralph Crawford, Convention Chairman, Manitoba Dental Association, 308 Kennedy Street, Winnipeg, R3B 2M6.

Canadian Meetings

Ontario Dental Association and the Dental Society of the State of New York, Joint Convention, Sheraton Centre, Toronto, May 14-17, 1978. Contact: Mrs. W.C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Canadian Academy of Periodontology/Quebec Association of Periodontists, Annual Meeting, Hotel L'Esterel (Laurentians), May 26-28, 1978. Speaker, Dr. Fermin Carranza of California. Contact: Dr. M. Stutman, 4141 Sherbrooke St. West, Suite 535, Montreal, Quebec, H3Z 1B8.

Les Journées Dentaires du Québec, Quebec Hilton Hotel, Quebec City, May 28-31, 1978. Contact: Dr. R.M. Lang, 5171 Decarie Blvd., Montreal, Quebec H3W 3C2.

Alberta Dental Association Convention, Jasper, Alberta, May 28-31, 1978. Contact: Dr. G.D. Harle, #400, 10454 - 82 Avenue, Edmonton, Alberta T6E 2A1.

Alberta Dental Hygienists' Association Annual Convention, Edmonton Plaza Hotel, Edmonton, Alberta, May 28-31, 1978. Keynote speaker: Dr. Ken Olson, author of *The Art of Hanging Loose in an Uptight World.* Contact: Marg Suss, 306-9925, 91 Avenue, Edmonton, Alberta, T6E 2T7.

College of Dental Surgeons of Saskatchewan Convention, Holiday Inn, Saskatoon, June 1-4, 1978. Speakers: Dr. E. Ambrose, restorative dentistry; Dr. S. Zarb, prosthodontist. Contact: Dr. Don C. Johnson, 507-105-21st Street East, Saskatoon, Saskatchewan S7K 0B3.

Fourth Canadian Cleft Palate Conference, University of Western Ontario, London, June 16-17, 1978. Contact: Dr. R. Latham, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Association of Canadian Faculties of Dentistry/L'Association des Facultés Dentaires du Canada, 10th Biennial Conference on Canadian Dental Research and Education, University of Western Ontario, London, June 19-21, 1978. The research sessions will consist of symposia on "The Tongue" and "Denture and Pulp", followed by ten 15-minute research papers presented by speakers from the dental schools. The education sessions will examine "Clinical Evaluation Systems in Canada" and "Dental Aptitude Test Programs". Accommodation for registrants is available at Delaware Hall, the same facility as the Conference. Contact: ACFD/AFDC Registration and Accommodation, Room 1003, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Atlantic Provinces Dental Convention, Charlottetown, Prince Edward Island, July 2-5, 1978. Contact: Dr. David O'Connell, 13 Green Leaf Drive, Sherwood, Prince Edward Island.

Pacific Dental Federation Convention, Vancouver, July 23-26, 1978. Contact: Dr. Ken Neuman, President, Pacific Dental Federation, 1125 West 8th Avenue, Vancouver, British Columbia V6H 3N4.

Canadian Society of Oral Surgeons, Scientific Workshop and Meeting, Winnipeg, September 8-11, 1978. Contact: Dr. Colin Foster, 521-233 Kennedy Street, Winnipeg, Manitoba R3C 3S5.

Canadian Dental Hygienists' Association Annual Convention, Winnipeg, Manitoba, September 8-13, 1978. Contact: Diane Girardin, Convention Chairman 1978, Box 22, LaSalle, Manitoba R0G 1B0.

Canadian Academy of Oral Radiology, 1978 Annual Meeting, Winnipeg, Manitoba, September 10, 1978. Contact: Dr. C.G. Baker, Head, Section of Radiology, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Ave., Winnipeg; or Dr. C.E. Hawrish, 5064 Dentistry Pharmacy Centre, University of Alberta, Edmonton.

Pacific Coast Society of Orthodontists, 1978 Convention, Hyatt Regency Hotel, Vancouver, British Columbia, October 1-5, 1978. Contact: Dr. J.G. Ryan, #1330 - 925 W. Georgia St., Vancouver, British Columbia V6C 1R5.

International Meetings

Circulo Odontologico Del Sur (Southern Argentina Dental Society), Second International Congress and Third Socio-Economic Congress, Bahia Blanca, Argentina, May 25-28, 1978. International lecturers will deal with all clinical specialties. Contact: Dr. R.L. Ellis, Associate Professor, Department of Community Dentistry, University of Toronto, Faculty of Dentistry, 124 Edward St., Toronto, M5G 1G6.

Continued on page 198

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European Orthodontic Society, 54th Congress, The Hague, Netherlands, June 4-9, 1978. Main theme: ''Stability after orthodontic treatment''. Contact: Secretariat, 54th EOS Congress, c/o Netherlands Congress Centre, P.O. Box 9000, Churchillplein 10, The Hague, the Netherlands.

Congresso da Conferação Latino-Americana de Protesistas Dentais, Convention Hall of Anhembi Park, São Paulo, Brazil, July 8-14, 1978. Contact: X Congresso da Confederação Latino-Americana de Tecnicos Dentais, 01302 Rua da Consolacao, 2416, São Paulo, Brazil.

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International Symposia, commemorating the 25th anniversary of the Hebrew University - Hadassah School of Dental Medicine, Jerusalem, Israel, July 9-12, 1978. Theme: ''Future perspectives of dentistry''. Contact: Dr. Irwin Ship, U.S. Co-ordinator, 1611 Broad-Locust Building, Philadelphia, Pennsylvania 19102. Telephone: (215) 735-4183.

New Zealand Dental Association, 9th Biennial Conference, Christchurch, August 21-24, 1978. Contact: H.G. Knowles, Honorary Secretary NZDA Biennial Conference Committee, P.O. Box 1301, Christchurch, New Zealand.

11th International Congress of Nutrition, Rio de Janeiro, Brazil, August 22 - September 1, 1978. Contact: Dr. J.A. Campbell, Treasurer, International Union of Nutritional Sciences, 1785 Riverside Drive, Suite 2204, Ottawa, Ontario K1G 3T6.

International Association for the Study of Pain, Satellite Symposium, Geneva Park Conference Centre, Longford Mills, Ontario, Canada, August 25-27, 1978. Theme: ''Mechanisms and treatment of dental pain''. Contact: Dr. R. Dubner, National Institute of Dental Research, Building 30, Room B-18, National Institutes of Health, Bethesda, Maryland 20014, U.S.A.

European Meeting of Oral Pathology, Amsterdam, August 29 - September 1, 1978. An advanced course in clinical and histological oral pathology. Contact: Miss R. Mooijen, Department of Oral Pathology, Free University, De Boelelaan 1117, Amsterdam, the Netherlands.

International Association on Dentistry for the Handicapped, 4th International Congress, London, England, September 12-15, 1978. Contact: Conference Office, 4th ICDH, Dental School and Hospital, University of Birmingham, St. Chad's Queensway, Birmingham B4 6NN, England.

Continued on page 200

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North Dakota Invitational Conference on Health Science Education, Grand Forks, North Dakota, September 20-21, 1978. Theme: "Evaluation in Health Science Education". Contact: Office of Medical Education and Evaluation, UND School of Medicine, 501 Columbia Road, Room 121, Grand Forks, North Dakota 58202.

Sixth International Conference on Endodontics, September 21-24, 1978. Theme: "Mechanism and control of pain". Contact: Dr. Louis Grossman, University of Pennsylvania School of Dental Medicine, 4001 Spruce Street, Philadelphia, Pennsylvania 19104, U.S.A.

European Association for Maxillo-Facial Surgery, 4th Congress, Venice, Italy, September 25-30, 1978. Contact: Maxillo-Facial and Stomatology Department, "S. Bortolo" Regional Hospital, 36100 Vicenza, Italy.

Fédération Dentaire Internationale, 66th Annual World Dental Congress, Madrid, Spain, September 25-30, 1978. Contact: Lawson, McKay Tours Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9. Telephone: (416) 364-0622.

Society for Clinical and Experimental Hypnosis, 30th Annual Meeting, Grove Park Inn, Asheville, North Carolina, October 17-22, 1978. Contact: Dr. Shirley Sanders, SCEH Convention 1978, Office of Continuing Education, University of North Carolina, 236 MacNider 202H, Chapel Hill, N.C. 27514.

Second International Prosthodontic Congress, Las Vegas Hilton Hotel, Las Vegas, Nevada, October 18-22, 1978. Contact: American Prosthodontic Society, 919 North Michigan Avenue, Suite 2108, Chicago, Illinois 60611.

American Dental Association, 119th Annual Session, Anaheim, California, October 22-26, 1978. Theme: "Dentistry's Mission: Pursuit of Excellence". Contact: American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

Asian Pacific Dental Federation, 9th Dental Congress, Merlin Hotel, Kuala Lumpur, Malaysia, April 23-27, 1979. Contact: Dr. Lim Chee Shin, P.O. Box 234, Petaling Jaya Selangor, Malaysia.

Society for the Advancement of Anaesthesia in Dentistry, International Congress on Sedation, Anaesthesia and Analgesia in Dentistry, Royal Lancaster Hotel, London, England, July 13-16, 1979. Contact: The Secretary, SAAD, 53 Wimpole Street, London W1M 7DF, England.

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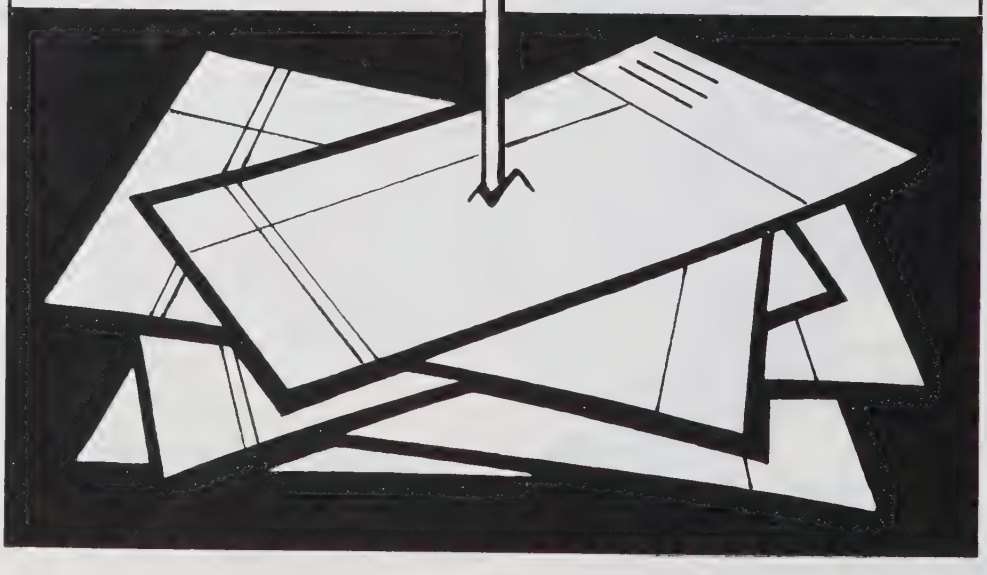

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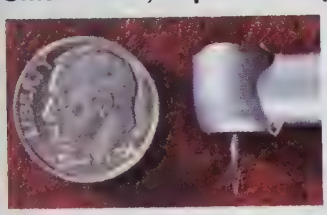

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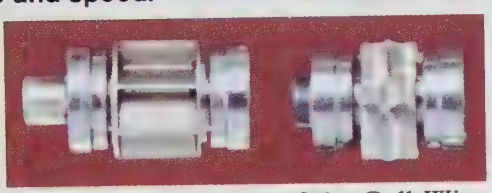

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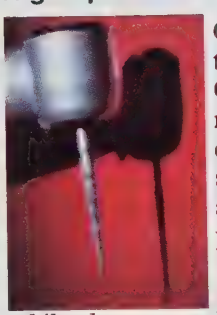

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The Canadian Dental Association will hold its 1978 National Convention in Winnipeg, Manitoba, September 10-13.

The scientific program of lectures and clinics will feature an impressive lineup of internationally recognized speakers representing the entire spectrum of specialties in the field of dentistry. A small sampling of the topics to be discussed includes the following:

Endodontics

Dr. Marshall D. Peikoff and Dr. William H. Christie will deal with treatment of traumatic injury in the young patient during their joint presentation.

Dr. Peikoff is assistant professor and head of the Endodontics Section of the University of Manitoba's Faculty of Dentistry. He is the author of several publications and has been extensively involved in presenting lectures and clinics throughout Canada and the United States. An honours graduate of the University of Manitoba and a Masters graduate of Boston University, Dr. Peikoff has been specializing in endodontics for the past 10 years in Winnipeg. He is an examiner of the National Dental Examining Board, a Fellow of the Royal College of Dentists of Canada and a Diplomate of the American Board of Endodontics.

Dr. Christie is in practice with Dr. Peikoff and is also associated with the University of Manitoba's Faculty of Dentistry. A graduate of the University of Manitoba, he received his Masters degree in dentistry from Ohio State University where he was a teaching assistant for two years. An internationally known lecturer and clinician, Dr. Christie served as editor of the Manitoba Dental Association Bulletin and has written articles for a number of dental publications. He is a member of the Canadian Academy of Endodontics and the American Association of Endodontists.

Pedodontics

Delegates interested in advanced pedodontic restorative procedures will not want to miss the session presented by Dr. Walter A. Doyle. Dr. Doyle, the author of numerous articles which appear in current publications and textbooks, has made more than 300 presentations throughout the United States, Finland, Greece and Ireland. A graduate of Emory University School of Dentistry in Georgia, he received his Masters degree in pedodontics from Indiana University and his Masters in orthodontics from Boston University School of Dentistry. Although he has conducted a full-time practice in pedodontics in Lexington, Kentucky, for the past 15 years, he has an impressive teaching record at the Universities of Indiana, Kentucky, Boston and Northwestern. Dr. Doyle is currently president of the American Society of Dentistry for Children, a Fellow of the International College of Dentists and has held numerous high offices in state and national dental associations.

Practice management

Dr. Richard Klein and Dr. Ralph O'Connor are recognized as leading experts in the field of dental practice management and they will provide an in-depth look at this topic during the scientific program.

Both serve on the clinical faculty of the University of Washington School of Dentistry and their experience is drawn from several stages of practice: junior associate, solo, senior associate, and the five-man group practice in which they now practice.

Drs. Klein and O'Connor have presented their program at the University of Washington for 15 consecutive years, continually updating their course and continuing to draw large audiences. Many dentists and their staffs take the course several times to update ideas and further implement the many new concepts in their own practices.

Orthodontics

"The interception of crowding in the anterior segments in the early mixed dentition" is the title of the 1978 Grieve Memorial Lecture which will be presented by Dr. Rowland D. Haryett.

Dr. Haryett received his Masters degree in dentistry from the University of Toronto and became a Fellow of the Royal College of Dentists a short time later. He joined the University of Alberta's Faculty of Dentistry and, during his stay, became chairman of the Department of Orthodontics and established a graduate program in orthodontics in 1970. In 1976, he served as President of the International College of Dentists.

These are just a few of the speakers and topics to be featured on the convention agenda. Many more will be publicized in future issues of the Journal.

Of course, the scientific program will be complemented by an exciting calendar of social events and a complete program for the ladies.

The Convention Committee, under the chairmanship of Dr. Ralph Crawford, has already invested many months of hard work to ensure that this year's National Convention is one of the best ever. Don't miss it!

Don't wait. Register now.

The Canadian Dental Association's National Convention will be held in Winnipeg, September 10-13, 1978. Early pre-registration is strongly recommended. For your convenience a registration and hotel reservation form is included at the back of this issue. Fill it out and return it, with your cheque, today.

Tools of the Trade

Colgate's Special MFP Fluoride provides continuing protection against cavities between check-ups.

The fluoride treatment you give gets your patients off to a good start. But it's important that they brush with an effective fluoride toothpaste, like Colgate,* so they're fighting cavities between check-ups too.

Our clinical tests show that the regular use of Colgate with MFP fluoride alone significantly reduces the number of new cavities. Used in conjunction with your topical fluoride application, it follows that there should be an even greater reduction of cavities.

How does Colgate's special fluoride MFP fight decay? We believe that MFP* (sodium monofluorophosphate) is effective in converting the surface layer of apatite (calcium hydroxyphosphate) into fluorapatite (a calcium fluorophosphate) thus making the tooth more resistant to decay.

Colgate's MFP is stable. Even after three years the sodium monofluorophosphate is still present and able to react with tooth enamel.

And it's reassuring to know that staining of teeth, a problem associated with some dentifrices is not a problem with Colgate's MFP.

You might remind your patients how important it is to back-up your fluoride protection...with the kind that Colgate's special MFP fluoride provides.

CANADIAN DENTAL ASSOCIATION RECOGNIZED

"Colgate has been shown to be an effective decay-preventive dentifrice that can be of significant value when used in a conscientiously applied programme of oral hygiene and regular professional care."
Canadian Dental Association.

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QUEBEC DENTISTS WITHDRAW FROM HEALTH INSURANCE PLAN

Increasing numbers of dentists across Quebec are withdrawing from the province's Health Insurance Plan to protest the slow pace at which the government is negotiating the renewal of the agreement providing dental treatment to children. The principal issue which has resulted in the breakdown of negotiations is the basic structure for the distribution of health care. The main points of contention are individual contracts, modes of remuneration and auxiliary personnel.

Dr. Claude Chicoine, President of the Quebec Dental Surgeons Association, has explained that dentists in the province have two basic choices of retaliation: non-participation or withdrawal from the Health Insurance Plan. In the case of non-participation, the patient is made solely responsible for payment of the dentist's fee, whereas in the case of withdrawal from the Plan, the patient makes the necessary payment to the dentist and is then reimbursed by the Quebec Health Insurance Board. In addition, the dentist who withdraws from the Plan can only charge the fee agreed upon with the Insurance Board.

"We have chosen to withdraw instead of non-participating in order not to penalize the people of Quebec," stated Dr. Chicoine.

Withdrawal from the plan is proceeding in stages and currently involves dentists in the following regions: Sherbrooke, Montreal East, the Laurentians, Montreal Eastern Centre, the Saguenay, Quebec City and the Outaouais area. On April 20, 745 dentists from the greater Montreal area joined their colleagues, bringing the total number of general practitioners withdrawing from the Plan to 1,178. In accordance with the law, dentists must forward their withdrawal notices to the Quebec Health Insurance Board and then wait 30 days before the withdrawal becomes effective. By May 20, all general practitioners in the province will have withdrawn effectively from the Plan. Pedodontists, as members of the Association and therefore participants in the Plan, are expected to join the general practitioners in the near future.

Information issued by the Quebec Dental Surgeons Association provides background data on the current impasse. In May, 1974, an agreement to render dental health care to children up to eight years of age was concluded between the government in power at that time and QDSA. This agreement, effective for a period of one year, covered the treatment of primary teeth and, since children in this age group required mainly treatment of primary teeth, this "free" dental care regime was certainly valid.

However, each following year the age of children covered by the Plan was increased — May, 1975: under nine years; May, 1976: under 10 years; and, May, 1977: under 12 years — without extending the treatment to teeth other than primary. (The government has announced it will further extend the Plan in May, 1978 to cover children under 14 years of age.) In order to rectify this situation, the QDSA approached the government with recommendations on numerous occasions. In addition, the Association introduced a proposal identical to the one accepted for physicians in general practice.

At issue is the pattern of distribution of treatment. According to the QDSA, "This is a fundamental issue as we wish to avoid practices which would qualify as factories and, at the same time, eliminate the concept of dental nurses while producing quality care in an environment which considers the human relationship between patient and dentist."

The government offer would allow the dentist to be assisted in the distribution of care, but it fails to define the word "assist". The QDSA has defined the term by clearly indicating the precise duties of each component of the dental team.

Another issue questioned by the Association is the government's position with regard to the format of individual contracts. The present format is not acceptable to the QDSA, in light of the fact that these contracts will set the precedent for the future when the dental care plan will be expanded to cover the following groups: individuals up to 18 years of age; those on social welfare; people in institutions and senior citizens. As the number of people involved in the plan increases, these contracts will become more prevalent and the QDSA feels it must be able to negotiate the best working conditions for its members while maintaining the high quality of care dispensed by the profession.

Smooth surface...excellent marginal integrity

SIMULATE

In each of these photographs, E represents human enamel and C represents composite restoration material magnified 1320 times. The arrows indicate the interface between them. Acid etchants and primers were used as specified by the respective manufacturers. The photograph on the left shows the restorations immediately after placement and finishing. The photograph on the right shows the same restorations after the equivalent of 10 weeks brushing (1,100 tooth-brushing strokes). The pictures speak for themselves. Kerr SIMULATE provides excellent marginal integrity and a long-lasting smooth surface.

What the pictures don't show is that SIMULATE is a unique two-paste restorative with an acid etch-primer system, featuring a specially formulated no-mix primer. SIMULATE, which is naturally fluorescent, comes in a universal shade. Two tints and an opaquer are also available. It is easy to place and sets fast.

Ask your Kerr dealer about SIMULATE!

In vitro study conducted at the University of California, San Francisco. Article published in Operative Dentistry magazine.

SYBRON | Kerr

Cheryl Wilcox

Cheryl Wilcox was appointed to the staff of the Canadian Dental Association in September, 1977, as Accountant / Office Manager. In this responsible position, Mrs. Wilcox is charged with the task of providing the effective general accounting and office management services necessary to ensure the Association operates at maximum efficiency.

Within this broad framework of responsibility, her specific duties include the supervision of the accounts payable and receivable departments, preparation of monthly financial statements and payroll, as well as the selection, training and evaluation of office staff.

Mrs. Wilcox is a graduate of Youngstown State University, Ohio, with a degree of Associate in Applied Business and is currently attending second level courses towards a Certified General Accountants degree.

Prior to joining the CDA, Mrs. Wilcox was employed by Bell and Adams, a Patent-Trademark firm in Ottawa where she was responsible for the firm's accounting, purchasing and office management functions.

UNIVERSITY OF ALBERTA SELECTS DEAN

Dr. Gordon W. Thompson has been appointed Dean of the Faculty of Dentistry at the University of Alberta effective July 1, 1978. He is presently Associate Dean of the Faculty of Dentistry at the University of Toronto.

Dr. Thompson succeeds Dr. Donald Collinson who has served as Acting Dean since December, 1976.

A native of British Columbia who did his pre-dental studies at UBC, Dr. Thompson received his degree in Dentistry from the University of Alberta. After practising in Wetaskawin, Alberta, he began graduate studies at the University of Toronto and obtained his MScD and PhD degrees there. He became a Fellow of the Royal College of Dentists of Canada in 1976.

Dr. Thompson joined the full-time staff of the Toronto dental school in 1969 and now holds the ranks of Professor in the Faculty of Dentistry and Associate Professor in the Faculty of Medicine. He has presented and published a number of papers, principally in the fields of Cranio-facial Growth and Development, and Dental Epidemiology. Dr. Thompson has been deeply involved in all aspects of administration for the last five years with a particular interest in student admissions as Chairman of the Faculty's Admissions Committee.

He has also been active in organized dentistry for several years. Dr. Thompson is the Editor of the Journal of the Ontario Dental Association as well as a consultant to the Fee Guide Committee, a member of the Ad Hoc Committee on Admissions and an ex-officio member of the Executive Council of the Ontario Dental Association. In addition, Dr. Thompson is a member of the Canadian Dental Association's Dental Aptitude Test Committee and was a member of the Organizing Committee for the recent Congress of the Fédération Dentaire Internationale in Toronto.

Dr. G. W. Thompson

NATIONAL DENTAL EXAMINING BOARD OF CANADA

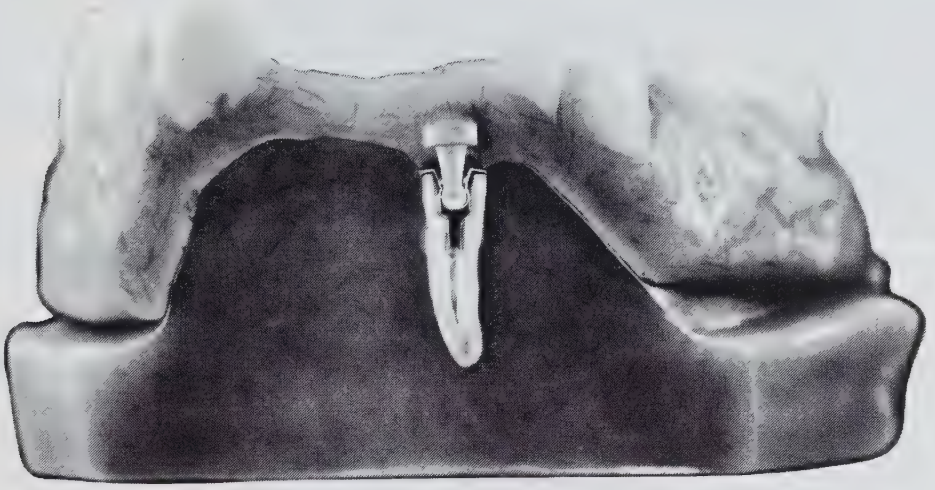
The dates for the 1978 NDEB examinations have been set as follows:

Written examinations
(various examination centres in Canada and Loma Linda, California)
May 23, 24, 25 and Oct. 23, 24, 25, 1978

Preclinical examination
The University of Western Ontario
May 29, 30, 31, 1978

Clinical examinations
The University of Western Ontario and McGill University
June 1, 2, 5 to 9 and Aug. 17, 18, 21 to 25.

THE ZEST-RETAINED OVERDENTURE FOR UNSTABLE TEETH



When aveolar bone has severely resorbed and few teeth remain, the Zest® Anchor provides a low-cost, time-proven alternative to conventional full dentures.

The Zest Anchor lowers application of force below the gingiva. It reduces leverage on the root so dramatically that highly unstable teeth can serve as abutments.

And a Zest-retained over-denture is inexpensive enough to use even when the prognosis is questionable. It doesn't require a cast root coping (though it can be used with one). And the male can be processed in place or secured with self-curing resin.

During the next year, Ash Temple will be conducting a series of clinics across Canada for dentists and dental technicians to further explain and demonstrate the Zest Anchor technology. If you are interested in attending one of these clinics, please fill out the attached self-addressed card and the Ash Temple representative will supply you with dates, times, and places.

Ash Temple LIMITED

Another Ash Temple service.

In memoriam

Thomas L. Marsh

It is with regret that the Canadian Dental Association announces the death of Thomas L. Marsh of Ottawa on February 19, 1978, at the age of 69.

Dr. Marsh received his DDS from the University of Toronto in 1932. For the next 10 years he was involved in private practice in Toronto and became involved in organized dentistry and research. He was a part-time Research Fellow at the Faculty of Dentistry and served both as a member and officer on various dental committees active in public health and preventive programs. He was Chairman of the International Committee on Dentistry in Hospitals of the American Hospital Association (1939-42), a member of the Academy of Dentistry and of the Academy of Medicine of Toronto and was the author of published articles on preventive dentistry and nutrition in dentistry.

Dr. Marsh joined the Royal Canadian Dental Corps in 1942 and followed a distinguished career with the Armed Forces during which he was involved in teaching, administration, logistical planning and research. In 1949 he attended the United States Army Research and Graduate School at Walter Reed Medical Centre in Washington, D.C. His DDPH followed in 1951-52 and he was the first staff officer Dental Public Health to the Director General Dental Services. In 1954-55 he was Commander, Dental Services in Europe for NATO (Canadian Forces) and served in Belgium, Holland and Germany.

He was a member of the FDI Commission on Armed Forces Dentistry in 1954-55 and was Chairman of the Dental Section of the International Congress of Military Medicine and Pharmacy as well as being military liaison officer with the dental professions in Germany, Belgium and the Netherlands. From 1958-61 he was Command Dental Officer for Quebec and Labrador.

Dr. Marsh resigned from the Armed Forces in 1961 and was appointed Regional Dental Officer with the Manitoba Department of Health and Associate Professor and Head of the Section on Dental Public Health, Faculty of Dentistry, University of Manitoba.

In 1965, Dr. Marsh was appointed as Consultant in Public Health Dental Research for the Department of National Health and Welfare and was based in Ottawa. His contributions to dental public health during his stay in Ottawa are well known. The impact of his influence both privately and publicly will steer the course of public health dentistry for years. His series of publications on the demand for dental services is a very good example.

In 1971, Dr. Marsh was appointed Acting Chief of Dental Services, a post he held until his retirement in 1973. In retirement, he still maintained a very active interest in dental affairs and continued to work for National Health and Welfare in an advisory capacity until June, 1974.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on March 31, 1978:

Common Stock Fund	$29.626
Fixed Income Fund	$20.744
Guaranteed Fund	$14.471
Balanced Fund	$10.069

Total assets (market value) of the plan were $29,214,098.39.

The previous month's figures, as of February 28, 1978, stood as follows:

Common Stock Fund	$28.129
Fixed Income Fund	$20.620
Guaranteed Fund	$14.390
Balanced Fund	$ 9.999

Total assets (market value) of the plan were $26,334,490.72.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

Deaths

Adams, George A. C., 67. Toronto, Ontario. University of Toronto, 1933. 10-3-78. Survived by John and Richard (sons).

Bishop, Harry P., 73. Haliburton, Ontario. University of Toronto, 1928. 16-1-78. Survived by Viola (wife) and three children.

Blouin, Eugène, 80. Quebec City, Quebec. University of Montreal, 1922. 22-2-78.

Cloutier, François, 55. Ville St. Laurent, Quebec. University of Montreal, 1950. 22-2-78.

Delwo, Bryan F., 31. Quesnel, British Columbia. University of British Columbia, 1973. 23-2-78.

Eckel, Harvey W., 80. Toronto, Ontario. University of Toronto, 1923. 13-3-78.

Gaudet, Nester Simon, 47. Coquitlam, British Columbia. University of Montreal, 1957. 22-2-78.

Johnson, Verne L., 87. Rothesay, New Brunswick, University of Oregon, 1915. 3-2-78.

Lee, G. A., 86. Islington, Ontario. Royal College of Dental Surgeons, 1916. 12-1-78.

Lemire, L., 90. Hudson Heights, Quebec. University of Montreal, 1912. 8-2-78.

Marsh, Thomas L., 69. Ottawa, Ontario. University of Toronto, 1932. 19-2-78. Survived by Régine Chevrier (wife) and Kelly and Jennifer Louise (daughters).

Ray, S. S., 42. Toronto, Ontario. University of Toronto, 1962. 21-1-78.

Thompson, Otto Robert, 78. Victoria, British Columbia. University of Toronto, 1925. 13-3-78. Survived by Muriel (wife), Neil and Wayne (sons) and Orma (daughter).

Toker, Maxwell H., 77. Montreal, Quebec. McGill University, 1924. 26-2-78. Survived by Ethel (wife), William and Franklin (sons) and Charlotte (daughter).

Essay award contest

The Canadian Society of Oral Surgeons has announced that entries are now being accepted for its annual "Research and Essay Award Contest".

The purpose of this contest is to encourage and recognize outstanding research, either clinical or basic, or an exceptional essay related to the specialty of Oral Surgery. An appropriate certificate or plaque, two days' expenses and travel to the annual meeting to present the winning paper will be awarded.

Eligibility shall be restricted to:

1) Active members of the CSOS

2) Candidates for membership in the CSOS

3) Interns and residents in accredited or accreditation eligible oral surgery training programs in Canada and/or Canadian residents training in an approved program in foreign countries.

Consideration will only be given to those submissions that:

1) Have not been previously published, in toto, in the dental or medical literature.

2) Constitute basic or clinical research projects in a subject area related to the specialty of Oral Surgery.

3) Constitute an extensive review of the literature pertaining to a subject relevant to the specialty of Oral Surgery.

Manuscripts, in triplicate, must be prepared in accordance with the format of the *Journal of Oral Surgery*, submitted by a date annually determined in reference to the dates of the annual meeting, and sent to the office of the Secretary of the CSOS.

If the winning manuscript is submitted by multiple authors, the cash award and certificate will be given to the senior author. Award winners must present their papers before the Society at the ensuing annual meeting. In the case of multiple authors, the senior author will present the paper.

Deadline for entires is July 1, 1978. All entries should be mailed to: Dr. Huan Pham, Chairman, Continuing Education Department, 3535 Queen Mary Road, Suite 318, Montreal, Quebec H3V 1H8.

The Canadian Dental Association's Board of Governors held its interim meeting March 13 and 14, 1978, at the Chateau Laurier Hotel in Ottawa. Shown above, left to right, are: Dr. N. A. Mancini, Chairman of the Board; Dr. R. L. Moran, CDA President-Elect; and Dr. D. L. Rife, CDA President.

Among the Governors representing the western provinces at the interim meeting were (left to right): Dr. G. E. Utas, Alberta; Dr. J. W. MacKay, Saskatchewan; and Drs. R. N. Hicks, C. D. Mielke, and W. J. Froese, all of British Columbia.

TAXATION COMMITTEE TACKLES INEQUITIES IN CONTINUING EDUCATION TAX RULES

CDA's Taxation Committee is attempting to remove the inequities in Canada's multitude of tax laws as they apply to dentists.

"Our first objective is to investigate how continuing education is handled by other professions or small businessmen," the committee's chairman, Dr. Robert Hicks of West Vancouver said.

"Dentists who attend continuing education courses are presently allowed to deduct tuition fees only under Department of Revenue regulations. We would like to see that extended to travel and accommodation as well."

The commiteee has retained the chartered accounting firm of Touche Ross and Company of Toronto as advisors. Dr. Hicks said the committee plans to engage a tax lawyer as well.

Dr. Hicks said there are many forms of taxation applied to small businessmen or self-employed professionals which the dental profession regards as inequitable. One concerns tariffs applied to the cost of dental equipment imported into Canada.

Other members of the committee are Dr. Clyde Covit, Montreal; CDA Executive Director Lloyd A. Stevenson; Assistant Director George Watts, and Ontario Dental Association Executive Director John Gillies.

CONGRES DES ETUDIANTS DENTAIRES TENU A TORONTO

Au congrès des étudiants de l'Association dentaire canadienne, tenu à Toronto du 23 au 26 novembre dernier, les représentants des étudiants ont précisé les structures, les responsabilités de ce conseil nouvellement formé.

Ann Sarvari-Lawlor, de l'Université de Toronto, présidait ce Congrès auquel assistaient les représentants des dix écoles canadiennes de médecine dentaire: James Girard, Colombie-Britannique; James Anderson, Alberta; James Henderson, Saskatchewan; Donald Neal, Manitoba; David Hurst, Western Ontario; Jack Gerrow, Toronto; Richard Gilsig, McGill; Gary Cousens, Montréal; Jean-Luc Dion, Laval; et Robert DeWolfe, Dalhousie.

Le Congrès a eu lieu à la Faculté de Médecine dentaire de l'Université de Toronto et, il était financé, comme auparavant, par les fonds canadiens pour l'enseignement dentaire, à même la subvention spéciale accordée par Colgate-Palmolive Ltée. Le CCED '77, organisé par le bureau des affaires des étudiants de l'ADC et l'association, y était représentée par son comité des affaires des étudiants: Dr Edwin Yen, président; Dr Ivan Hrabowsky, praticien; Dr D. J. Yeo, professeur; M. Art Worth, étudiant gouverneur; et Linda Teteruck, directrice des affaires des étudiants pour l'association dentaire canadienne.

La réception d'inauguration, tenue au Centre Sheraton, était subventionnée par l'Association Dentaire de l'Ontario. Le Dr A. J. Harris, président de l'ADO et M. John Gillies, directeur-exécutif de l'ADO ont chaleureusement accueilli les délégués. Parmi les autres dignitaires présents; le Dr Donald Rife, président de l'ADC; le Dr Rod Moran, président élu de l'ADC; le Dr R. Evans, ancien président de l'ADO; le Dr E. Sonley, président du Collège Royal des chirurgiens-dentistes de l'Ontario; le Dr T. A. Shapero, coordonnateur canadien de l'Association internationale des étudiants dentaires et M. Murray McDonald, directeur exécutif du fonds canadien pour l'enseignement dentaire.

Statut de conseil plénier

Ann Sarvari-Lawlor a officiellement inauguré la séance d'affaires du jeudi matin, 24 novembre. Le Dr Donald Rife a ensuite pris la parole pour expliquer aux délégués l'importance de s'intégrer à la médecine dentaire organisée par les voies existantes et déja structurées. Il a insisté sur les activités du Bureau des gouverneurs au cours de cette dernière année et particulièrement sur l'expansion du rôle des étudiants au sein de l'Association ainsi qu'à la promotion de leur statut à celui de conseil plénier confirmant ainsi l'importance attribuée aux futurs gradués.

Le Dr Rife a informé les délégués que le Bureau des gouverneurs avait créé le nouveau conseil sur les affaires des étudiants. Ce nouveau Conseil sera formé par les étudiants qui feront directement un rapport au Conseil exécutif de l'ADC et, par la suite, au Bureau des gouverneurs.

Le nouveau Conseil a été mis sur pied car l'Exécutif et le Bureau estimaient ainsi offrir une voie plus directe dans les structures de l'ADC. Auparavant en effet, la voix des étudiants était véhiculée vers le Conseil sur l'éducation de l'ADC où les motions présentées étaient votées et transmises au Bureau des gouverneurs et finalement, aux Conseils ou organismes appropriés.

Le Dr Rife également expliqué le mandat du nouveau Conseil sur les affaires des étudiants tel que conçu par le Bureau des gouverneurs lors de sa réunion en mars 1977 et il a signalé qu'un membre exécutif de liaison serait nommé au Conseil dès sa création. Le mandat du Conseil comprend les éléments suivants:

1. Faire un rapport au Bureau des gouverneurs, au moins une fois par an, sur les activités et les objectifs des étudiants.
2. Se charger de l'organisation et de la marche efficaces du congrès canadien des étudiants dentaires.
3. Faire des recommandations ayant trait à la participation des étudiants aux affaires nationales et internationales.
4. Promouvoir l'adhésion des étudiants à l'ADC.

Le Dr Rife a ensuite examiné le rôle de l'ADC en ce qui concerne ses rapports avec d'autres organismes dentaires. Il a expliqué que l'ADC était un organisme non dictatorial, qui émettait des directives reposant sur l'unanimité des voix provenant des organismes de la santé dentaire émanant tout le Canada. Au point de vue constitutionnel, la santé dentaire relève du gouvernement provincial et c'est par l'entremise des association provinciales que l'ADC obtient son mandat. L'ADC agit à titre de tribune nationale pour les questions auxquelles s'intéressent la profession dentaire et le public du Canada. Voilà

pourquoi les étudiants doivent participer à la profession organisée, à l'échelle nationale aussi bien que provinciale.

Le Dr Edwin Yen a ensuite pris la parole: il a élaboré le discours du Dr Rife en insistant sur les responsabilités et privilèges du nouveau Conseil sur les affaires des étudiants. Le Dr Yen a spécifié que le Bureau des gouverneurs avait décidé que le Conseil serait composé de cinq membres, un étudiant gouverneur, le président de CCED avec et trois membres.

Vint ensuite le rapport du Comité des affaires des étudiants, présenté à la réunion du Conseil sur l'éducation tenu en mai 1977, ainsi qu'un résumé des activités du Conseil sur les divers éléments compris au rapport.

Monsieur Les Jones, président de la Compagnie Amalgamated Dental fut le conférencier suivant. Sa présentation porta sur les rapports réciproques et interdépendants entre les industries dentaires et la profession; il a indiqué les nombreux secteurs de la recherche entreprise par la profession dentaire au cours des cinquante dernières années et les progrès effectués dans tous les domaines de la technique dentaire. Il a également parlé des développements futurs dans ce domaine.

Conseil national des examinateurs dentaires

Le Dr E. Sonley du conseil national des examinateurs dentaires a pris la parole pour expliquer aux délégués les diverses fonctions et activités du CNED. Il a souligné que le CNED est très consciente du fait que toutes les facultés dentaires du Canada sont accréditées par l'ADC et il a signalé que sans cette procédure, il ne pourrait y avoir d'accréditation nationale. A son avis, il y a lieu de reviser le programme attitrant les facultés. Parlant de la situation financière actuelle du CNED, le Dr Sonley a souligné que cet organisme est deficitaire et que les fonds reçus des étudiants diplômés constituaient la principale source de soutien du Conseil.

Suite à la présentation du Dr Sonley, les étudiants délégués ont déclaré qu'ils espéraient que des rapports étroits seraient entretenus entre le CNED et le nouveau Conseil sur les affaires des étudiants et qu'il y aurait autant d'information que possible sur le CNED, lors de la campagne annuelle d'adhésion de l'ADC. Une proposition fut adoptée, invitant le CNED à présenter une brochure d'information portant sur sa structure, ses fonctions et ses activités, et distribuée à tous les étudiants dentaires avec une formule d'adhésion à l'ADC en septembre de chaque année.

Rapports des représentants

Monsieur Art Worth, étudiant gouverneur pour 1977, a présenté un rapport sur les activités du Bureau des gouverneurs en 1977 en ce qui touche les questions relatives au fait étudiant. Monsieur David Campbell, représentant au CCED 1976, a donné un compte rendu du Congrès d'enseignement ADC/AFDC 1977.

Le Dr T. A. Shapero, coordonnateur canadien de l'association internationale des étudiants dentaires a parlé des activités de l'AIED ainsi que des faits saillants des congrès internationaux passés. Il a souligné la nécessité d'établir une liaison entre l'AIED et toutes les facultés dentaires en vue de faire connaître aux étudiants ses diverses réalisations, notamment ses programmes d'échange, son concours de dissertation et ses divers programmes dans les pays en voie de développement, etc.

A titre de réponse à la présentation du Dr Shapero, la motion suivante a été adoptée: ''Que chaque délégué au CCED s'occupe de promouvoir les fonctions et les activités de l'AIED au sein de son université respective'' et ''que chaque délégué soit encouragé à promouvoir la présence d'un agent local de l'AIED à sa propre université''.

Programme de tables cliniques des étudiants

Le vendredi 25 novembre, Monsieur Paul Belzycki a ouvert la séance par la présentation d'un rapport sur le programme de tables cliniques des étudiants. Monsieur Belzycki, de l'Université de Toronto, a présenté une table clinique lors du Congrès de la FDI et il a spécifié qu'en général, le programme de 1977 avait été couronné de succès. Il a souligné que les tables cliniques en 1977 n'étaient pas d'allure concurrentielle, selon d'ailleurs la recommandation faite par les délégués du CCED 1976.

Les remarques de M. Belzycki ont provoqué une discussion parmi les délégués sur la meilleure façon de choisir des cliniciens dans les diverses facultés. Certaines écoles organisent un concours pour choisir l'étudiant clinicien et ailleurs, le doyen ou un membre de la faculté nomme ledit clinicien. Voilà pourquoi les délégués ont adopté la motion suivante: ''Que le CCED 1977 encourage les tables cliniques à l'échelle locale et la sélection concurrentielle des cliniciens pour chaque école, mais qu'il réaffirme son opposition à la méthode concurrentielle à l'échelle nationale.''

Régimes d'assurance

Monsieur Ray Davis, représentant de l'entreprise ''Employee facts'', organisme promotionnel qui collabore avec le Canadian Dental Service Plans Inc. (CDSPI) (Régimes canadiens de services dentaires Inc.) a discuté des nouveaux régimes d'assurance offerts actuellement à tous les membres de la profession dentaire. Il a énuméré les risques assurables auxquels fait face le nouveau dentiste — décès, invalidité, dommages-intérêts, responsabilité — ainsi que les neuf nouveaux régimes offerts par le CDSPI qui couvrent ces risques. Il a également indiqué les nouveaux tarifs et les nouvelles propositions en ce qui concerne l'assurance-vie, l'assurance-invalidité, l'assurance-invalidité résiduelle, l'assurance-frais de gestion et contenu du cabinet dentaire, les régimes de coassurance, etc.

Les délégués ont également eu l'occasion d'entendre le Dr Rod Moran, président élu de l'ADC, qui discutait d'un ensemble d'assurance actuellement offert aux diplômés dentaires canadiens. Cette assurance globale comprend: assurance-vie de base,

$20.000; assurance-invalidité de longue durée, $600 par mois; gestion de bureau, $500 par mois; garantie complémentaire d'assurance salaire, $500 par mois pour un an; assurance-négligence professionnelle, $500.000 (l'assurance-négligence professionnelle n'existe pas en Ontario puisqu'elle fait partie des droits versés pour obtenir le permis d'exercer).

Le Dr Moran a signalé aux étudiants que le financement de cet ensemble d'assurance pour les diplômés s'élevait à $60.000 par an, ces coûts étant essentiellement absorbés par les dentistes qui se procurent leur assurance. L'objectif de ce régime est d'encourager les nouveau diplômés à l'adopter, a remarqué le Dr Moran, mais les dernières statistiques sont décevantes. Il a ajouté que si les nouveaux diplômés n'appuyaient pas le régime, il faudrait sans doute le supprimer et il a incité les délégués à informer leurs collègues de ce dangu et à promouvoir ce programme d'assurance parmi les diplômés.

Les délégués ont ensuite étudié l'assurance actuellement disponible aux étudiants universitaires — une couverture assurance-vie temporaire de $5.000 ainsi que l'assurance-maladie complémentaire de la Croix Bleue et un régime d'épargne-retraite d'un maximum de $5.500 par an. Les délégués ont décidé à l'unanimité qu'il devrait y avoir une plus grande variété d'assurance pour les étudiants et la résolution suivante a été adoptée: ''Que la CCED '77 invite le Conseil sur les affaires des étudiants à demander au Conseil de l'ADC sur l'assurance et les investissements d'étudier l'élaboration et la mise en œuvre de garanties destinées aux étudiants dans les domaines suivants: 1) assurance-mutilation; 2) assurance-maladie ou accident (pour fournir à un étudiant qui doit redoubler une année pour cause de maladie ou d'accident, les fonds qui lui seront nécessaires).''

Suite à ces discussions portant sur l'assurance, Monsieur Bud Bower a pris la parole pour parler aux étudiants de l'historique et des activités actuelles du Fonds canadian pour l'Enseignement dentaire. Il a mentionné les divers projects destinés aux étudiants auxquels participe le FCED, y compris le Congrès canadien des étudiants dentaires, le programme de tables cliniques des étudiants de l'ADC, les bourses et les subventions annuelles accordées à chaque école dentaire et distribuées selon les directives du doyen. Pour exprimer leur reconnaissance envers l'appui apporté par le Fonds aux étudiants dentaires du Canada, les délégués ont adopté la résolution suivante: ''Que tous les représentants du CCED encouragent les dons au FCED en provenance de leur classe respective de nouveaux diplômés''.

Campagnes d'adhésion des étudiants

Les campagnes d'adhésion à l'ADC des étudiants, organisées dans les diverses écoles dentaires, ont fait l'objet de discussion et les participants ont jugé à l'unanimité qu'elles avaient été couronnées de succès. Les délégués ont spécifiquement exprimé leur reconnaissance envers l'ADC pour les subventions qu'elle a bien voulu verser à l'appui d'une série de réceptions ''Bienvenue à la profession'' tenues dans les facultés canadiennes. Tout le monde s'est mis d'accord pour dire que ces réceptions avaient été accueillies chaleureusement par les étudiants et avaient réussi à stimuler leur intérêt vis-à-vis l'association.

On a ensuite discuté des programmes d'internat d'été et des coûts élevés de l'enseignement dentaire au Canada. Les programmes d'internat d'été à l'intention des étudiants entre leur troisième et quatrième année d'études, sont actuellement à la portée des étudiants de Colombie-Britannique, d'Alberta et de Saskatchewan et le CCED '77 a décidé à l'unanimité que l'expansion à toutes les provinces du Canada de ces programmes serait bénéfique à la profession aussi bien qu'au public et aux étudiants dentaires. Une résolution a été adoptée, invitant le conseil sur les affaires des étudiants à rechercher l'appui de l'ADC et de ses Conseil à l'égard de la mise en œuvre de programmes de ce genre dans toutes les provinces.

Les délégués se soucient également des coûts élevés de l'enseignement dentaire et de l'efficacité du système provincial actuel d'aide aux étudiants. Ils ont souligné que dans certaines provinces, la profession est en danger de devenir hors d'atteinte pour ceux qui ne sont pas en mesure de faire face aux coûts et ils ont adopté une proposition invitant le Conseil sur les affaires des étudiants à étudier cette question et à présenter les recommandations ad hoc.

Monsieur Donald Neal, de l'Université du Manitoba, a été élu président du Congrès 1978, que l'on prévoit tenir à Winnipeg. Les autres membres élus sont les suivants: Gary Cousens, Université de Montréal, étudiant gouverneur à l'ADC; James Girard, Université de Colombie-Britannique, représentant au Conseil sur l'éducation; Richard Gilsig, Université McGill, représentant au Congrès sur l'enseignement; et Jack Gerrow, Université de Toronto, représentant au Conseil national des Examinateurs dentaires.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mars, 1978:

Fonds d'actions ordinaires	$29.626
Fonds à revenue fixe	$20.744
Fonds garanti	$14.471
Fonds de placement équilibré	$10.069

L'avoir total (valeur marchande) de régime d'élevait à $29,214,098.39.

Au 28 février, 1978, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$28.129
Fonds à revenue fixe	$20.620
Fonds garanti	$14.390
Fonds de placement équilibré	$ 9.999

L'avoir total (valeur marchande) de regime d'élevait a $26,334,490.72.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

HOW PEMBROKE WON FLUORIDATION

Thomas Ringland, DDS
Joint Chairman,
Pembroke Fluoridation Committee

On December 6, 1976, the electorate of Pembroke, Ontario (population 17,500), voted in favour of the fluoridation of their municipal water supply.

Why was the campaign successful?

Two previous attempts by plebiscite to have this important dental public health measure instituted were unsuccessful. In 1972, the fluoridation question had been defeated by a wide margin, and in 1974 it had been narrowly defeated. The successful result this time was due to an effective, well-run campaign headed by a hard working committee.

Three months before the election, in September of 1976, the Pembroke Dental Society met to discuss the inclusion of the fluoride question for the third time on the ballot for the upcoming municipal election. At this meeting, the Dental Society unanimously endorsed fluoridation for Pembroke and chose three of its members to form the nucleus of the Pembroke Fluoridation Committee.

The remaining dentists were prepared to educate their own patients and relied upon the committee to obtain the necessary pamphlets and posters for their offices.

It was felt that this composition of the committee was most important as it was essential that the population as a whole be represented. Other committee members were to be health professionals and lay people who had experience with volunteer work and who had a record of community involvement.

Although the Dental Society initiated the formation of the committee and approved its goals and actions, only three of its members served on the committee — two as co-chairmen and the third as information officer. The other members were a varied group representing a variety of disciplines and interests. Each would bring his own area of knowledge and expertise to the campaign and those who had lived in fluoridated communities could be excellent sources of first-hand information.

During the next three weeks, the two co-chairmen contacted the prospective committee members. All accepted, and the inaugural meeting of the "Pembroke Fluoridation Committee" was held in the first week of October. The first task for the dentists on the committee was to educate fellow members themselves about fluoridation.

This was done via literature from the Canadian Dental Association and the Health League of Canada; the detailed University of Western Ontario resource "The History of Fluoride"; and magazine and newspaper clippings outlining the dramatic decrease in tooth decay in fluoridated communities (Toronto and Brantford, Ontario being the two prime examples used).

The committee decided upon an aggressive, high profile campaign that would emphasize education of the public and would completely avoid personal confrontation. Its aims were as follows:

1. To amass information about fluoridation, its effectiveness in reducing tooth decay, its safety and its cost.
2. To educate the electorate with respect to the dental status of their community and to acquaint them with the advantages of adding fluoride to their water supply.
3. To employ many methods of communication and so ensure that as large an audience as possible heard the message. Radio, newspapers, audio-visual aids, posters, buttons, public speaking engagements and pamphlet distribution were all methods of communication used.
4. To avoid confrontation with the anti-fluoridation group who, although vocal, were few in number and lacked organization. At no time was the challenge of an open debate accepted and "Letters to the Editor" from the Pure Water Society were not answered directly. This non-confrontationist approach helped defuse the emotional atmosphere which can be present in a fluoride campaign.

Having decided to make extensive use of the media for their campaign, the committee realized that fund raising would be necessary. To that end, letters were sent to all service clubs, businesses and professional people requesting donations. The favourable response to this request was enormously encouraging in the early days of the campaign.

Also, early into the campaign, the committee's lawyer interpreted the Fluoridation Act to ensure that the request for the plebiscite was properly transacted. The accountant handled all the financial business which involved banking donations and paying bills.

The committee's engineer contacted other fluoridated communities to learn about the cost of purchasing and maintaining the necessary equipment.

A dentist produced a pamphlet outlining regional facts about fluoridation, i.e., listing other communities in the Ottawa Valley with fluoridated water supplies and the benefits and costs to our community of this measure.

The educator on the committee composed and produced ten-second spot radio announcements for broadcast in the last two weeks before the election. One of the two public health nurses designed and procured "Fluoride for Pembroke" buttons that proved immensely popular.

Other resource people included a pediatrician and a pharmacist whose knowledge was most valuable. Four housewives and an insurance salesman were the interested and committed lay people who completed the committee.

As the campaign continued, the committee met weekly to ensure that past decisions had been acted upon and future plans made — thus the campaign was flexible and responsive to public reaction. A budget was voted upon and the committee spent October procuring the pamphlets, posters, and buttons and making the radio spot announcements. A publicity blitz was planned for the four weeks prior to the election.

Pamphlets were invaluable as a method of disseminating information that was easily read and understood.

The CDA fluoridation officer, Mr. Lloyd Bowen, ensured that ample copies of pamphlets that he possessed were reproduced and distributed. The CDA's "Facts Favour Fluoridation" were placed in dental and medical offices, hospitals and pharmacies. The city pharmacies also participated throughout the campaign by distributing that pamphlet and the committee's fluoridation poster with every prescription that was dispensed.

The American Medical Association Brochure "Efficacy and Safety of Fluoridation" provided an excellent list of the questions most often asked. In addition, the committee found the AMA booklet which outlined the steps a fluoridation committee should take to ensure an orderly approach to the campaign most useful.

Glossy coloured posters were produced locally and distributed through the campaign. The message was simple: "Fluorine in drinking water reduces tooth decay, strengthens bones, is guaranteed totally safe, cuts cavities 60% and costs only pennies per person per year." A picture of a smiling young child with healthy teeth accompanied the wording.

"Fluoride for Pembroke — Smile" buttons were very popular with all ages. The ten-second spot announcements featuring school children talking to each other about the benefits of fluoridation were played twice daily on the radio. Although using local talent, these were professionally done, and well received. They added greatly to the quality of the campaign.

The dental profession supplied speakers for service clubs and home and school gatherings.

Usually, these events were publicized in the local paper. Letters from prominent persons within the profession (i.e. dental faculty deans, presidents of provincial associations and the Royal College of Dental Surgeons) were printed in the "Letters to the Editor" section commencing three weeks before the election. Articles appeared daily for two weeks before voting day. This support from knowledgeable people outside the community is readily available and must be made public.

One week before the election, an audio-visual presentation was held for a entire day at the two shopping malls. This program outlined all aspects of preventive dentistry with emphasis upon fluoridation. At these displays were very effective audio-visual cassettes donated by a dental supply house. The booths were manned by committee members who distributed buttons and pamphlets, and by a dentist who answered queries.

Three days before the election, the remaining posters and pamphlets were distributed in mailboxes all around town.

At the election on December 6, 1976, the vote was 3,760 in favour of fluoridation, 3,410 against, a close result considering the efforts of the committee and the lack of any sizeable countermovement.

Once a fluoridation plebiscite is passed, according to the Fluoridation Act, a city council has six weeks in which to pass a fluoridation by-law. Pressure should be applied to council members to ensure that this piece of legislation is swiftly transacted and the wishes of the electorate enacted.

A word of warning — it would be instructive to future fluoridation committees to expect many delays and legal manoeuverings before the fluoride is actually in the water. It takes some time for the enabling legislation to be passed (three readings in council plus the OMB hearing) and even longer for the equipment to be purchased and installed.

The onus is on the dental profession to ensure that municipal council members and provincial legislators be kept informed of the latest facts concerning fluoridation. Once aware of the resulting benefits and complete safety, more town councils could initiate this public health measure without putting the question before the electorate.

A successful campaign requires a determined, well organized committee that is committed to the objectives described in this article. Long hours and patience are essential when dealing with the public, many of whom have preconceived opinions about fluoridation. That we were successful in our objective was rewarding to the committee, but was more important for the future dental health of this community.

The author wishes to thank the following persons for their support and contribution to the Pembroke fluoridation campaign: K. Roach, BSc, DDS (co-chairman, whose hard work in the 1974 plebiscite laid the ground work for success two years later); J. Munroe, DDS; P. Harland, MD, FRCP(C); Mr. H. Bradley, Miss A. Delahaye; Mr. T. Harkins; Mrs. M. McDonald; Mrs. M. McEwen; Mrs. L. Mitchell; Mr. P. Schooley; Mrs. I. Sheremeta; Mrs. M. Steinberg, Mr. D. Stringer; Mr. C. Taylor; Mr. B. Vallance; Mrs. P. Work.

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ENAMEL PRETREATMENT IN DIRECT BONDING OF ORTHODONTIC ATTACHMENTS: A PRELIMINARY LABORATORY COMPARISON BETWEEN PHOSPHORIC ACID GEL AND SOLUTION

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The morphological changes as a result of acid etching with a phosphoric acid gel (44.1 per cent by weight) and phosphoric acid solutions (35.8 and 40.0 per cent by weight), are reported. Morphological changes in the enamel surface, as a result of acid etching with phosphoric acid gel, *differed significantly from changes that were observed if the phosphoric acid* solution *was used for etching. After 30 seconds, mainly preferential removal of the inter-prismatic material occurred with the solutions. With increased contact time, the prism periphery was attacked by the acid solutions, and eventually centre core areas began to erode. The phosphoric acid gel produced an etching type that did not clearly outline enamel rods, in many instances. There was little difference between the amount of calcium dissolved by the phosphoric acid gel and solutions at comparable concentrations.*

Acid etching prior to placement of acrylic restorations, fissure sealing and direct bonding in orthodontics, is rapidly becoming an accepted technique.[1,2]

In the rather comprehensive literature on adhesive bonding to etched enamel, the morphological changes produced by a variety of acids have been reported.[3-5] Some evidence has been reported that differences in the degree of enamel etching affect bond strength and the durability of the bond.[6] Phosphoric acid solutions, in the range 35-50 per cent, are used in most acid etch techniques,[5] although the lower concentration is preferred.

In orthodontic direct bonding techniques, such acid solutions can readily flow off the teeth onto soft tissue. Further, it is difficult to control the area of enamel etching to that desired. For these reasons, more and more manufacturers are now marketing adhesive kits containing a phosphoric acid gel as the etchant. There appear to be no data describing the morphological changes of phosphoric acid gels on surface enamel. The present work used scanning electron microscopy to compare the changes that occurred when one half of the tooth was etched with phosphoric acid solution, and the other half with phosphoric acid gel. Atomic absorption spectro-photometry was used to analyze the amount of calcium released from the tooth by the etchants.

Materials and methods

Teeth — Extracted human maxillary bicuspids were collected and stored in constantly changed distilled water at 20-22°C. Although the age of the teeth was unknown, care was taken only to use non-carious teeth. Bicuspids with restorations, and those teeth with hypocalcific or stained surfaces were discarded.

Acids

The following acids were used:

1. a commercially available "65 per cent" phosphoric acid gel.*
2. a 36 and 40 per cent (by weight) solution of phosphoric acid solution made by dilution of phosphoric acid.

Etching

Before the etchants were placed on the teeth, the buccal surfaces were cleaned with an aqueous slurry of pumice (maximum grain size about 250 um). The teeth were rinsed thoroughly with tap water, and finally with distilled water. The bicuspids were then blown dry with clean, warm, dry air.

With a .014 inch steel wire, a nail-polish mark was placed over the full length of the crown portion of the tooth.

The acid gel was applied to the right side of the tooth and the phosphoric acid solution was placed on the left side. Extreme care was taken not to cross the nail-polish demarcation when etching the respective halves of the tooth. The acid solution was gently and continuously dabbed over the other half of the same tooth according to the

* Rocky Mountain Orthodontics, Denver, Colorado.

manufacturer's instructions. Teeth were exposed to the etchants for 30, 60 or 120 seconds. The etchants were then rinsed off with copious amounts of tap water and finally with distilled water.

The teeth were placed 12 inches from a 500 watt hair-dryer and dried with warm air until the etched surface appeared dull white.

Scanning electron microscopy

Each tooth was then placed on a scanning electron microscopy (SEM) stub, allowed to air dry for 15 minutes, and then coated with a thin layer of carbon followed by a gold coating, in a vacuum evaporator.† Specimens were viewed in a Cambridge Stereoscan Mark 2A scanning electron microscope‡ operated at 20 kv. The beam specimen angles were varied to give the optimal visual field. Results were photographed on Ilford FP4 film. Cervical, middle and occlusobuccal parts of the left and right side were examined at magnifications from $\times 20$ – $\times 10{,}000$. In examining and photographing the specimens, the y and z axes were maintained constant. Photographs were taken at equal distance from the centre line on the left and right sides.

Calcium release analyses

The buccal surfaces of six teeth were pumiced, washed and dried as described previously (etching).

Three teeth received one drop of 40 per cent (by weight) acid solution (0.04 gm) and the remaining teeth received a drop of 44 per cent (by weight) acid gel (0.04 gm). Acids were exposed to the teeth for exactly 60 seconds. The buccal surfaces were then rinsed off with 20 ml of distilled water into a volumetric flask and diluted to volume. The solution was then analyzed for calcium, using an atomic absorption spectrophotometer.§ Standards containing 1,5, 10 and 15 ppm of calcium ions in solution were prepared containing the acid. The absorbance for each standard was determined before and after analysis of the samples.

Results

The actual concentrations of the etchants were analyzed by titration with 1.0N sodium hydroxide. The gel was found to be 44.1 per cent by weight; the 36 per cent solution, 35.8 per cent by weight; and the 40 per cent solution, 40.1 per cent by weight phosphoric acid.

Figures 1 to 12 show a representative set of etching patterns observed in several teeth. For brevity and as most interest is centred around the buccocclusal and middle part of the clinical crown, those areas are illustrated. The photomicrographs demonstrate the following:

1. Etching with a phosphoric acid gel creates a smooth surface pattern, with many fine holes (Figs 6 and 8).
2. Etching with the phosphoric acid solution gives the familiar rough pattern in a regular prismatic setting (Figs 5 and 7).
3. With increased etching time, the gel and the solution-etched surfaces lose more of their surface roughness.

Calcium release

The amounts of calcium dissolved by the 44 per cent gel and the 40 per cent solution are shown in Table 1.

Discussion

The etching patterns observed on the enamel etched with the solution are similar to those described by others.[4, 7]

In many instances it is not clear what concentration of phosphoric acid is used. Many manufacturers report their acids as, for example, "30 per cent" phosphoric acid. This

† Varian Vacuum Div. Model # VE-10 Portland, Oregon.
‡ Cambridge Instruments, Toronto.
§ Jerrell Ash Dial Atom.

Fig 1 Etched enamel of the buccal surface towards the occlusal; 36 per cent (by weight) H_3PO_4 solution for 30 seconds; $\times 2900$.

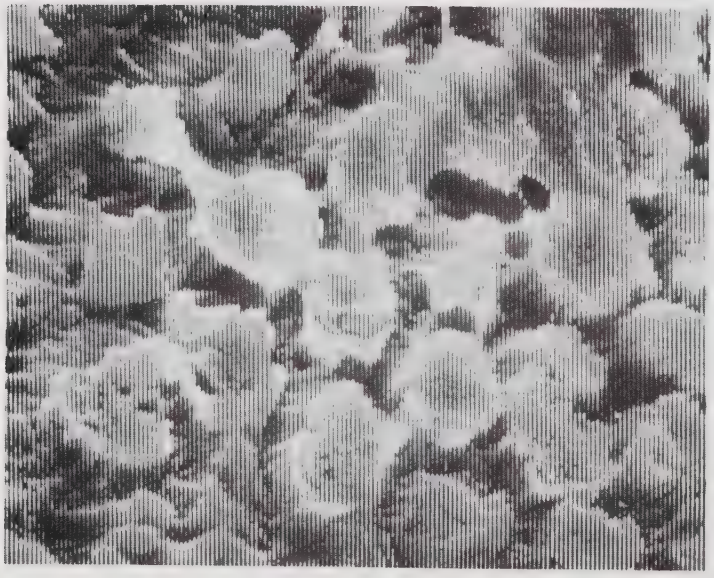


Fig 2 Etched enamel of the buccal surface towards the occlusal; the same tooth as Fig 1, 44 per cent (by weight) H_3PO_4 gel for 30 seconds; $\times 2800$.

Fig 3 Etched enamel of the buccal surface in the middle of the crown portion; same side as Fig 1, 36 per cent (by weight) H_3PO_4 solution for 30 seconds; × 2800.

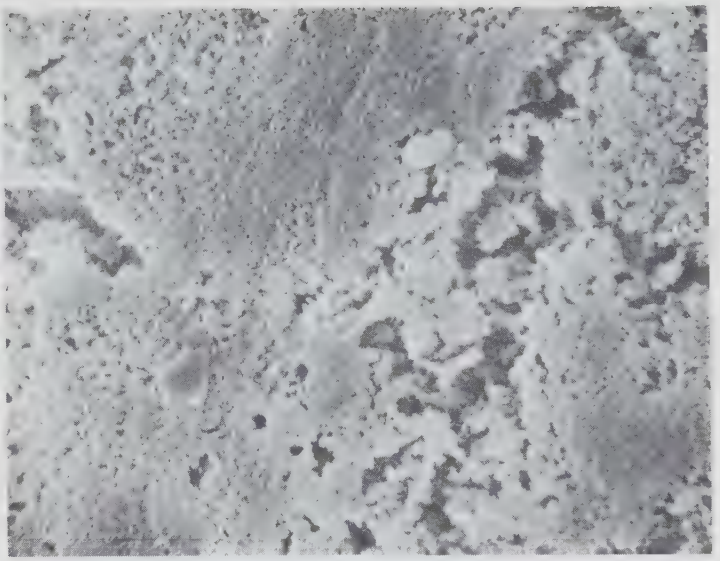


Fig 4 Etched enamel of counter half of Fig 3, 44 per cent (by weight) H_3PO_4 gel for 30 seconds; × 2700.

Fig 5 Enamel from the buccal occlusal region of a tooth exposed to 36 per cent (by weight) H_3PO_4 solution for 60 seconds; × 2600.

Fig 6 Etched enamel from the other half of the tooth seen in Fig 5. The buccal occlusal half exposed to 44 per cent H_3PO_4 gel for 60 seconds; × 2500.

Fig 7 Enamel from the middle of the buccal surface, etched for 60 seconds with 36 per cent (by weight) H_3PO_4 solution; × 2600.

Fig 8 The middle of the buccal half etched with 44 per cent (by weight) H_3PO_4 gel for 60 seconds; × 2600.

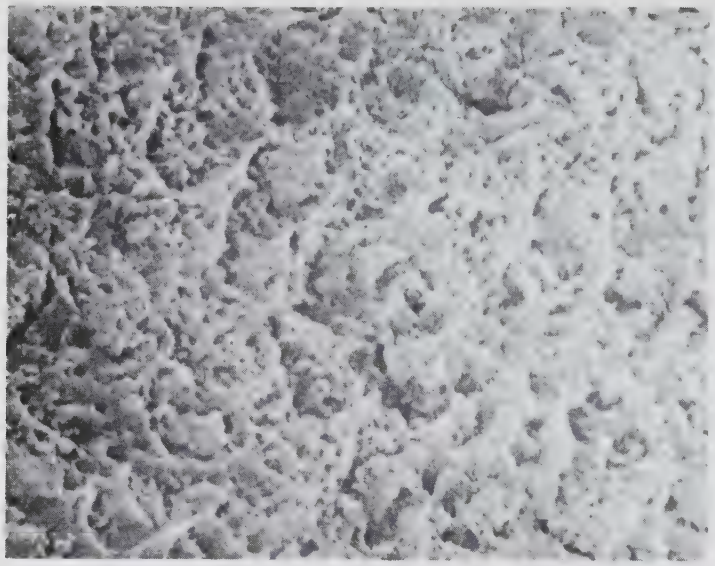


Fig 9 Etched enamel from the buccal occlusal region of a tooth, exposed to 36 per cent (by weight) H_3PO_4 solution for 120 seconds; × 2600.

Fig 10 Enamel from the counter half seen in Fig 9. This part of the tooth was exposed to 44 per cent (by weight) H_3PO_4 gel for 120 seconds; × 2900.

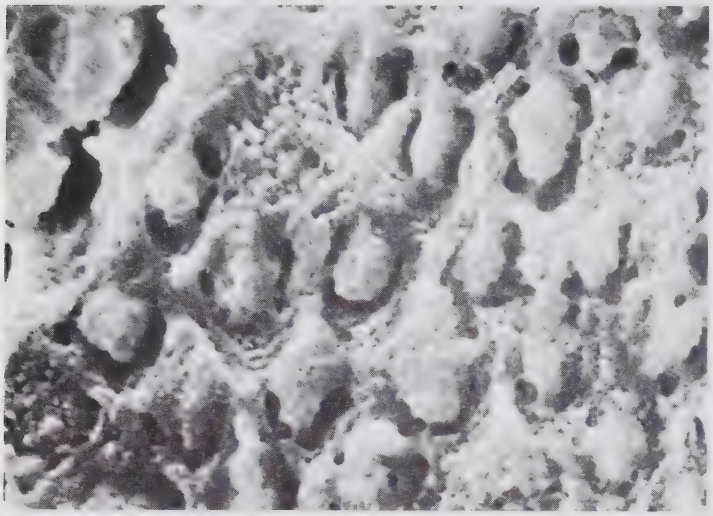


Fig 11 Etched enamel from the middle of the buccal surface, etched for 120 seconds with 36 per cent (by weight) H_3PO_4 solution; × 2600.

Fig 12 The counter half of the same tooth as Fig 11, enamel etched with 44 per cent (by weight) H_3PO_4 gel for 120 seconds; × 2600.

Fig 13 One half of the middle buccal part of a bicuspid, etched for 60 seconds with 40 per cent (by weight) H_3PO_4 solution; × 2900.

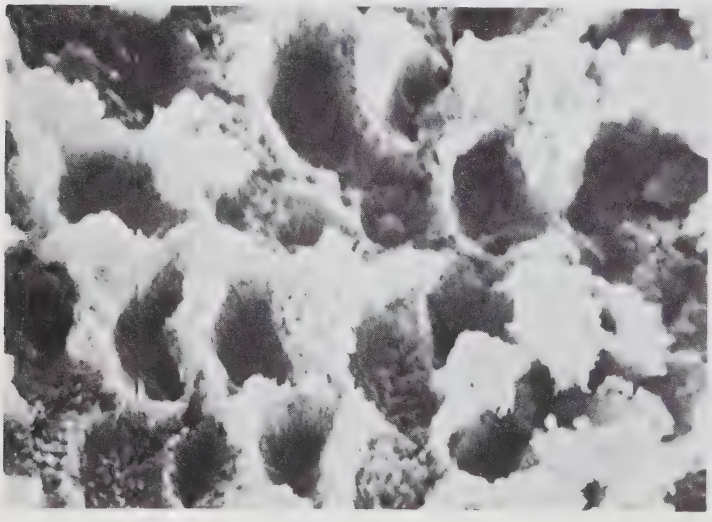
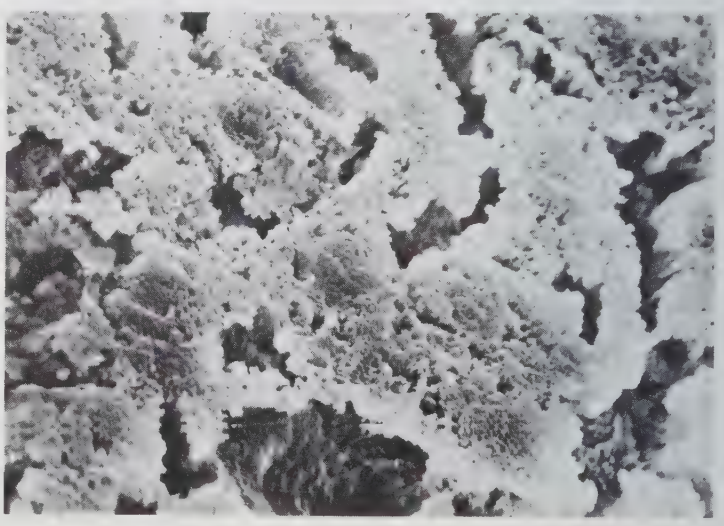


Fig 14 The other half of the tooth seen in Fig 13, exposed to 44 per cent (by weight) H_3PO_4 gel; × 2900.



Mean calcium concentration released by phosphoric acid gel and solution — Table 1

Specimen	Mean concentration of Ca++ in ppm.
Gel etched	191± 7.0*
Solution etched	118± 20.8*

*Standard deviation

vague statement does not give an indication of the actual concentration. For example, 30 per cent by weight solution of phosphoric acid solution has a molarity of 3.6 molar, whereas 30 per cent by volume of the same solution would be 5.7 molar concentration. Duff and El Motayam[8] have suggested that all commercially marketed etchants be labelled clearly as to their actual concentration.

Recently, Silverstone, et al[9] have described three patterns of etching in the enamel structure exposed to phosphoric acid solutions of various concentration. In their type 1, preferential removal of the prism cores occurs. In type 2, prism peripheries are removed preferentially, whereas in type 3, the majority of the tooth shows little evidence of prism morphology in general. These researchers used a one minute etching time.

In our experiments employing the 36 and 40 per cent (by weight) solutions, the initial etching (30 seconds) appeared to be preferential loss of interprismatic material and following this, attack of the prism periphery (type 2). As the tooth is exposed to the acid solution for a longer period of time, centre core areas of the enamel rods begin to erode. This appears to lead to the characteristic type 1 pattern. Continued etching will maintain a type 1 pattern but leads to greatly reduced surface roughness.

In contrast to this, the phosphoric acid gel consistently produced a type 3 like etching pattern. At 60 seconds, sometimes some outlines of enamel and peripheries can be seen (Fig. 8) with many small and longer holes superimposed on this.

Jörgensen[10] was unable to detect any morphological differences in scanning electron micrographs of enamel etched with 35 and 37 per cent unbuffered phosphoric acid, and 50 per cent attenuated phosphoric acid. As our etchants are well within the range reported by Jörgensen, we did not expect the concentration to have any effect in this case. To confirm this, three teeth in each time group were exposed to 40 per cent solution on one side of the crown, and 44 per cent gel on the other half. The results obtained confirm Jörgensen's findings, in that there appeared no difference in the etching patterns between 36 and 40 per cent (by weight) phosphoric acid solution, but a considerable difference between the 40 per cent solution and the 44 per cent gel (Figs. 13 and 14). In addition, the gel dissolves more calcium from the enamel surface in 60 seconds than the 40 per cent (by weight) phosphoric acid solution. This leads to speculation as to what extent the difference in morphology, created by the etchants, will affect the tensile bond strength between the enamel and the adhesive. Recently this has been investigated in our laboratory and will be reported elsewhere.[11]

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SURGICAL ENDODONTICS IN DENTAL CURRICULA

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A survey of accredited dental schools in the United States was conducted to determine the quantity and quality of the endodontic surgical experience of undergraduate and graduate students. This survey demonstrates a lack of experience for both the graduate and undergraduate students due to lack of available patients. Development of new techniques and/or materials in teaching surgical endodontics may be necessary to fill the apparent gap.

Wasilkoff and Maurice[1] have shown that 55 per cent of the dentists surveyed perform various types of surgical endodontics (apicoectomy, periapical curettage, retrofilling procedures, etc.). It is assumed that the general practitioner who practises endodontics will occasionally be faced with the necessity of surgical intervention to save teeth not amenable to "conservative" (non-surgical) procedures. The dentist faced with a surgical case has three alternatives: extraction, referral, or performing surgery himself.

In a survey of areas of interest in continuing education in endodontics at the University of Nebraska,[2] dentists in the states of Nebraska, Kansas, Iowa, South Dakota and Wyoming gave courses on surgical endodontics as their second highest preference. In examining this study, the need of surgical endodontics was recognized by the respondents; however, the sample of general practitioners was shown to be lacking in certain aspects necessary for the practice of surgical endodontics.

While it can be assumed that all accredited programs of undergraduate endodontic instruction include training in surgical endodontics, the quantity and quality of such instruction has not been adequately determined.

A survey conducted by Serene and Spolsky[3] has indicated that approximately 25 per cent of dental schools require undergraduate students to perform surgical endodontic procedures. Furthermore, Dunsky,[4] in a recent editorial, stated that "only a few schools have allowed their students to perform surgical endodontic procedures, and not be merely spectators of the event." Since there are no specific guidelines on the teaching of surgical endodontics *per se*, it was decided to determine the extent of both undergraduate and graduate instruction in surgical aspects of endodontics; the interaction of both the undergraduate and graduate teaching of the subject was also examined.

Method

A survey (Table 1) was designed to determine the extent of surgical endodontic exposure of undergraduate and graduate students. There can be little doubt of the necessity of training the endodontic resident in surgical endodontics. The survey, therefore, was also designed to determine if by depletion of patients by the endodontic graduate student, the undergraduate's experience was sacrificed.

The survey was accomplished by means of a questionnaire, sent to all 58 accredited dental schools in the United States.[5] An unstamped, self-addressed envelope was provided to encourage return of the questionnaire. A total of 39, or 67.2 per cent of dental schools responded to the survey. Of the respondents, some provided multiple answers (question 5) and others failed to respond to specific questions. The results are summarized in Table 2.

Discussion

The majority of respondents (87.1 per cent) reported spending two or more hours teaching undergraduate surgical endodontics. The maximum reported was six hours. Only one school stated that surgical endodontics was not covered in their present endodontic curriculum.

One school reported to have a case requirement of performing surgical endodontics by the undergraduates. Only eight schools reported to have a case requirement of *assisting* in surgical cases. This may expand on the response to the question, "Do you require surgical endodontic cases?" in the study of Serene and Spolsky,[3] whose affirmative response was 24 per cent of the sample. Furthermore, their study may not reflect the true picture in American dental schools, since the 10 Canadian dental schools were also included in the study.

Of the respondents stating that they had neither requirements of performing nor assisting with surgical cases, the reasons offered were: not enough cases available — 66.7

Survey of surgical endodontics in United States dental schools — Table 1

1. To how many hours of classroom lectures in surgical endodontics are your undergraduates exposed?
   A. None
   B. 1 hr.
   C. 2 hrs.
   D. 3 hrs.
   E. Other (specify) _____
2. Do your undergraduates have any requirements in conducting (vs. observing) surgical endodontic cases?
   A. Yes
   B. No
3. If yes, how many cases are required?
   A. 1 case
   B. 2 cases
   C. 3 cases
   D. 4 cases
   E. Other _____
4. Do your undergraduates have the requirement of assisting in surgical cases to gain experience in surgical endodontics (vs. conducting)?
   A. Yes
   B. No
5. If the answer to questions 2 and 4 are both "no", the reason is:
   A. not enough time in the curriculum
   B. not enough cases available
   C. these procedures are done by other departments
   D. not enough teaching manpower
   E. other _____
6. Do you have a graduate endodontic program?
   A. Yes
   B. No
7. If yes, do you feel that the graduate program depletes the available cases that could provide experience for the undergraduate dental student in surgical endodontics?
   A. Yes
   B. No
8. If answer to question No. 6 is yes, do you consider their training in surgical endodontic procedures to be adequate?
   A. Yes
   B. No
9. If answer to question No. 8 is no, the reason is:
   A. not enough cases available
   B. not enough time in the curriculum
   C. most are taken up by other departments
   D. other _____
10. If answer to question No. 6 is yes, what is the *average* number of surgical cases done by the graduate student?
    A. 1–4
    B. 5–8
    C. 9–12
    D. 13–15
    E. If 16 or more, specify number

All answers are anonymous.
Definition: Surgical endodontics (apical surgery, retro-fillings, etc.)

Responses to questionnaire on surgical endodontics — Table 2

Question No.		No. of responses	Percentage $\left(\frac{\text{Responses}}{\text{Total}}\right)$
1	A	1	2.6
	B	4	10.3
	C	16	41.0
	D	11	28.2
	E	7	17.9
2	A	1	2.6
	B	38	97.4
3	A	1	100.0
	B	0	—
	C	0	—
	D	0	—
	E	0	—
4	A	8	21.1
	B	30	78.9
5	A	10	25.6
	B	26	66.7
	C	2	5.1
	D	7	17.9
	E	1	2.6
6	A	22	57.9
	B	16	42.1
7	A	13	59.1
	B	9	40.9
8	A	12	60.0
	B	8	40.0
9	A	7	87.5
	B	1	12.5
	C	0	—
	D	0	—
10	A	0	—
	B	4	18.2
	C	3	13.6
	D	10	45.5
	E	5	22.7

per cent; not enough curriculum time — 25.6 per cent; and not enough teaching manpower — 17.9 per cent. It is interesting to note the response of "not enough cases available" since 60 per cent of the nation's dental schools are located in cities of approximately 500,000 or larger population.

Of the 34 dental schools with postgraduate endodontic programs,[6] 22 (64.7 per cent) responded (question 6). The 22 schools represented 37.9 per cent of the total sample of respondents. Of these, about 60 per cent felt that the graduate program depleted the available cases that could be accomplished by the undergraduate student.

Responses on the adequacy of surgical experience pro-

Continued on page 227

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DENTAL AGE: ITS RELATION TO SKELETAL AGE AND THE TIME OF PEAK CIRCUMPUBERAL GROWTH IN LENGTH OF THE MANDIBLE

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Serial growth records of 32 male subjects taken at ages 4 to 16 years were used in an effort to assess the accuracy with which dental and skeletal age reflect the maximum circumpuberal mandibular length acceleration. Dental age, as determined from oblique cephalometric radiographs, showed no significant correlation to this event. Skeletal age, as determined from hand and wrist radiographs, showed a very high correlation to the time of rapid circumpuberal mandibular growth. The use of hand and wrist radiographs is recommended to determine when a child is entering the active phase of mandibular length growth.

Based on a comparative study of dental and skeletal maturity, Gibson and Conchie[1] have advocated the compilation of an atlas of dental maturity to be used in conjunction with other criteria of human physical development for determining the developmental status of an individual. Before such an undertaking, however, the accuracy with which the developing dentition reflects the growing child should be determined. There are two ways of assessing the usefulness of dental age. Indirectly, dental age can be compared to each of the other indices of physical maturity or dental age can be compared directly to maturational events such as the time of the circumpuberal growth spurt.

Relationship of dental age to morphological age

Early studies reported that, in general, heavier and taller children tend to be dentally advanced.[2,3,4] Steggerda,[5] on the other hand, found a poor correlation between dental age and stature and concluded that size is not necessarily an indicator of precocity because of the variability of size in a population.

Relationship of dental age to sex age

Girls with advanced dental development tend to have an early menarche.[6,7] Lewis and Garn[8] reported a correlation coefficient of .62 between the time of second molar eruption and age at menarche. Nanda[9] reported similar figures for these two events. In addition, a study relating tooth eruption to secondary sex character classification found more teeth erupted, on the average, with a higher classification of secondary sex character.[10]

Relationship of dental age to skeletal age

Liliequist and Lundberg[11] reported a very high correlation between dental and skeletal ages ($r = .88$). This figure, however, is misleading because it is based on a sample of 287 children ranging in age from 6.5 to 14.5 years (sexes combined).

Demisch and Wartmann[12] reported a similar correlation between skeletal and dental age ($r = .83$) in a population with a wide age range. By holding chronological age constant, however, the partial correlation between the two ages dropped to .43. Similarly by dividing their sample into specific age groups, Lee et al[13] found that the correlation between skeletal and dental age drops from .85 for all ages combined to an average of .23 for nine age groups. Poor relationships between dental and skeletal maturation were reported as well by others.[14,15]

Relationship of dental age to the circumpuberal growth spurt

Two previous studies have found dental age to be of little predictive value in estimating the age of the circumpuberal growth spurt.[16,17] Dental age in both cases, however, was based on eruption times of selected teeth rather than total development of the entire dentition. A subsequent study using Nolla's system of determining dental age from radiographs of developing teeth, dental age, skeletal age, sex age and morphological age were compared amongst each other in an attempt to best reflect the time of the peak circumpuberal stature spurt.[18] Dental age showed the poorest relationship (.433) to this event while sex age showed the highest correlation (.831).

Of greater importance to the dentist is the possible predictive value of developmental age in determing the circumpuberal spurt of facial bones. It could be argued that although dental age is of poor predictive value in determining the time of the circumpuberal stature growth spurt, it may be of greater value in determining the time of circumpuberal growth in the jaws.

Although no studies to date have related dental age to the circumpuberal growth period of facial bones, several studies have related skeletal age to this period. Rose[19] found no correlation between skeletal maturation and growth of the facial bones in 50 males and 55 females. Johnston[20] et al, however, adjusted their Greulich and Pyle standards and found that skeletal maturation is a factor which accounted for a significant portion of variation in facial structure among children.

Specifically, the purpose of the present study is to assess the accuracy with which dental and skeletal age determine the timing of the circumpuberal spurt in growth of the mandible and perhaps predict at an earlier point of time when this event is about to take place.

Materials and methods

Sample and measurements

The subjects used in this study represent a Canadian middle-class population of European extraction and were drawn from the serial treatment male sample of the Burlington Orthodontic Research Centre.[21] Only 32 subjects of the entire sample had complete records from age 4 to 18 years and they were selected to form the sample group. Complete orthodontic records were available for each subject including, for the purposes of this study, lateral and oblique (45 degree) cephalometric radiographs, dental casts, and hand and wrist radiographs. For each individual at age levels 4 to 18 years, corresponding dental ages and skeletal ages were determined. In addition, the chronological age at which each individual reaches the point of mandibular length peak circumpuberal growth (mandibular PCG) was determined.

Dental age was determined from the 45 degree cephalographs, using Nolla's 22 methods for assessment of the developing permanent dentition. The mandibular teeth excluding third molars and incisors were selected for appraisal since they were readily discernible on an oblique cephalograph. After one month had passed, repeatability tests were performed to determine the intra-operator error.

The skeletal age for each individual throughout the age range and the degree of intra-operator error had been determined in an earlier study,[23] using the Tanner, Whitehouse method.[24] The age at which each individual undergoes mandibular PCG was determined by measurements taken from the lateral cephalographs, taken with the subject's mandible in the wide-open position to render the condyle visible. Mandibular length (condylion to gnathion) was measured and for each individual yearly mandibular lengths were plotted at each age level 4 to 18 years. The plotted points were fitted by eye as closely as possible using a French curve, resulting in a cumulative growth curve for each individual (Figure 1). Then yearly mandibular increments and half-yearly interpolated increments were plotted in turn against chronological age in order to derive an incremental curve for each individual. The period of maximum circumpuberal mandibular growth was determined by inspection of the incremental curves by noting the chronological age at which the incremental curve peaks during the circumpuberal period. For individual-peer comparison purposes, means and dispersions about the mean were calculated of mandibular lengths at each age level. These were plotted as a mean curve of mandibular growth and plus and minus one standard deviation about the mean. The yearly mean plots were joined using a French curve to construct a mean mandibular cumulative growth curve. An average incremental curve was constructed in the same manner as those derived from the individual cumulative curves as outlined above (Figure 1). Repeatability tests were performed after one month had elapsed.

Statistical procedures

The mean chronological age, dental age and skeletal age at which each individual reaches a period of maximum circumpuberal mandibular growth were noted. Means, dispersions about the means and age ranges were calculated and compared in order to determine which method of aging describes this event best.

The accuracy with which both dental and skeletal age can be used to predict the age of maximum mandibular growth was determined in the following manner. Coefficients were calculated to show the correlation between the chronological age of maximum mandibular growth and the recorded skeletal and dental ages for each chronological age level 4 to 18 years. These coefficients would then indicate the consistency of dental and skeletal ages as one goes back in age from maturity, and at the same time the relative value of dental and skeletal age as predictors of the timing of this event could be assessed.

Finally, in order to compare the degree with which dental and skeletal age accurately reflect the timing of maximum mandibular growth, a matrix of correlation coefficients was constructed among the following events: (1) chronological age of maximum mandibular growth, (2) chronological age at reaching dental standard 14.5 and (3) chronological age at reaching skeletal standard 14.5.

Results

The results of the repeatability tests to determine the degree of intra-operator error at the 95 per cent confidence level were as follows: (1) skeletal age $\pm$ 6.5 months, (2) dental age $\pm$ 4.8 months, and (3) age at peak circumpuberal mandibular growth $\pm$ 6.2 months. This is a cumulative error reflecting location of landmarks, measurements, and construction and interpretation of the incremental curves of mandibular growth.

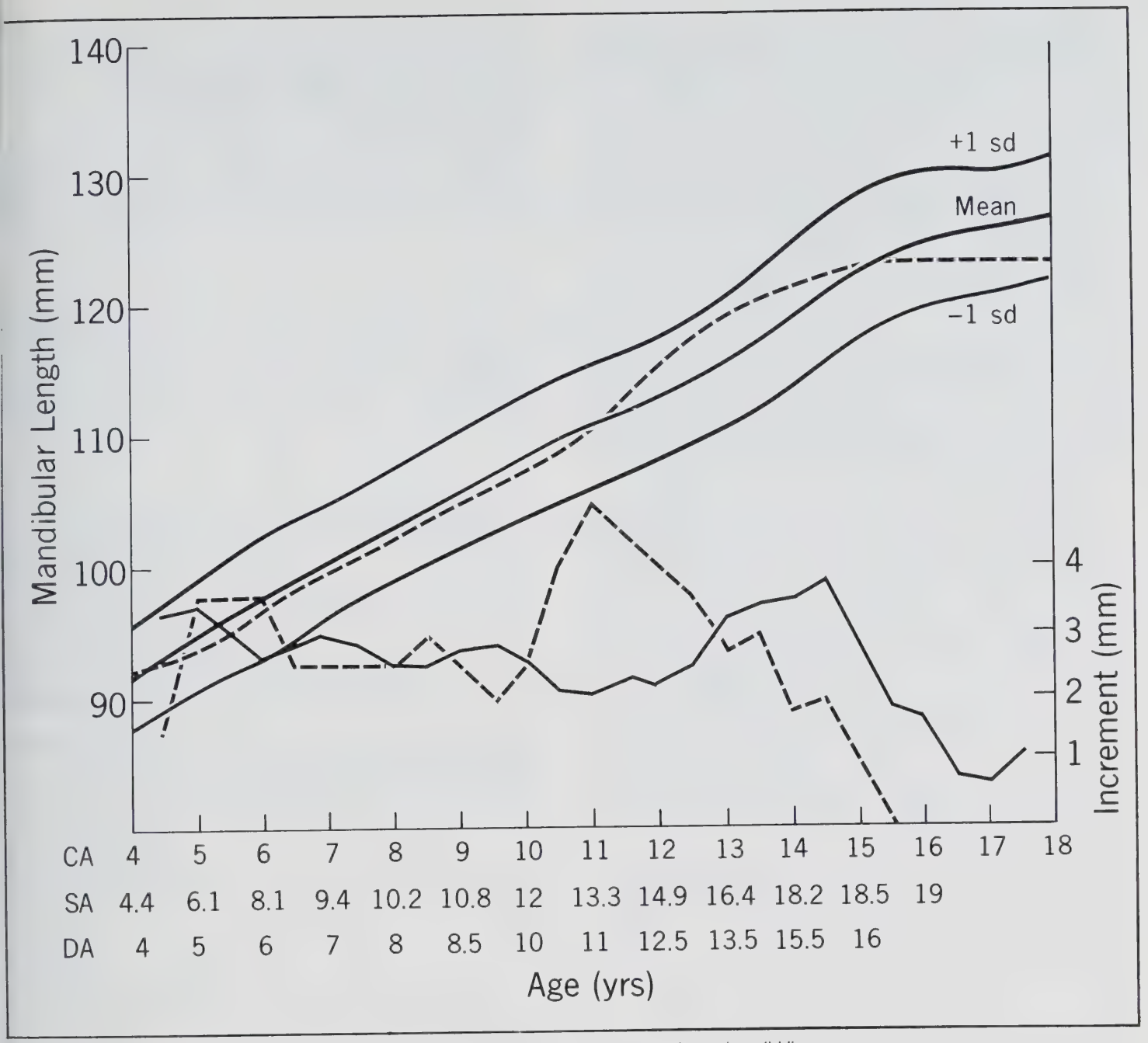

Fig 1 The mean cumulative and velocity curves of mandibular growth in length are shown in solid lines. The curves of one individual are shown in dotted lines.

Mean chronological, dental, and skeletal age at which peak circumpuberal growth in length of the mandible takes place — Table 1

	$\bar{x}$	S.D.	Max.	Min.	Range
CA	14.18	1.02	17.50	11.00	6.50
DA	14.67	1.36*	18.00	11.80	6.20
SA	14.52	0.41†	15.20	13.80	1.40

*Not significantly different from CA at 95 per cent confidence level
†Significantly less than CA at 99 per cent confidence level

Cumulative frequencies of ages at which 32 boys reach the peak mandibular growth spurt as marked by chronological, dental and skeletal ages — Table 2

	CA		DA		SA	
	No.	%	No.	%	No.	%
Within + 0.50 years of mean	15	46.8	10	31.2	26	81.2
Within + 0.75 years of mean	28	87.5	19	59.3	32	100.
Within + 1.00 years of mean	28	87.5	22	68.0	—	—
Within + 1.50 years of mean	30	93.7	25	78.1	—	—
Within + 3.00 years of mean	32	100.	32	100.		

A statistical description of the chronological, dental and skeletal age at which mandibular PCG occurs is presented in Table 1. While the means do not differ significantly amongst each other, the variances do. When the mean is expressed in terms of skeletal age, the variance is significantly less than when the mean is expressed in terms of chronological age and dental age. On the other hand, there is no statistical difference between the variances of the chronological and dental age means.

These results can be expressed in a different manner. Table 2 contains the cumulative frequencies of the chronological, dental and skeletal ages at which each of the 32 boys reach the event mandibular PCG in relation to their respective means. All the boys in the sample reach mandibular PCG within ± 0.75 years of the mean when this event is expressed in terms of skeletal age, in sharp contrast to within ± 3 years of the mean when expressed in terms of chronological or dental age.

Table 3 contains the correlation coefficients between the chronological age at which the mandibular PCG is reached, and the dental and skeletal ages for each chronological age level 4 to 18 years. The coefficients are, as expected, negative, indicating an individual who is skeletally or dentally ahead tends to arrive at maturational events, such as mandibular PCG, earlier. Throughout the entire age range, the coefficients between skeletal age and mandibular PCG are higher than the corresponding coefficients between dental age and mandibular PCG. In addition, there are no significant correlations ($\alpha = 0.01$) between dental age and mandibular PCG at any age level, while the relationship between skeletal age and mandibular PCG reaches a significant level at age 10 years.

Table 4 contains the correlation coefficients between the chronological age at reaching mandibular PCG and the chronological ages at reaching dental stage 14.5 and skeletal stage 14.5. The only coefficient in the entire matrix which is significantly different from 0 at the 99 per cent level of confidence is between skeletal standard S.A. 14.5 and mandibular PCG ($r = 0.89$).

Correlation coefficients between dental and skeletal ages with the period of peak circumpuberal growth in mandibular length (Md↑) for each age level 4 to 18 years — Table 3

Age level	r – SA and Md↑	r – DA and Md↑
4	−.15	−.02
5	−.26	−.17
6	−.28	−.19
7	−.26	−.17
8	−.31	−.20
9	−.33	−.13
10	−.36	−.23
11	−.47	−.19
12	−.59	−.16
13	−.71	−.11
14	−.86	−.10
15	−.87	−.12
16	−.79	−.04
17	−.78	−.05
18	−.65	−.06

$r_{99} = 0.35$ for 30 degrees of freedom

Correlational coefficients between the chronological ages at which dental and skeletal standards 14.5 occur and the chronological age at which peak circumpuberal growth in mandibular length (Md↑) takes place — Table 4

	Md↑	DA 14.5	SA 14.5
Md↑	1.00	.16	.89
DA 14.5	.16	1.00	.25
SA 14.5	.89	.25	1.00

$r_{99} = .35$ for 30 degrees of freedom

Discussion

The results of this study have shown that dental age is neither a good predictor nor an indicator of the timing of peak circumpuberal growth of the mandible. Skeletal age, on the other hand, shows a very strong relationship to this event. These observations, however, pose a question as to what is developmental age. Here we have two different indices of developmental age which are obviously not in complete harmony. In addition to skeletal and dental age, two other commonly used indices of developmental age are morphological age based upon body size and proportions, and sex age based upon the timing of secondary sex characters. The commonly accepted concept of developmental age is based upon an assumption which is in turn based upon an assumption. To illustrate, it is assumed[23] that the degree of sexual maturity is a reliable indication of general body maturity. In turn, the developing skeleton is assumed to reflect the reproductive system and therefore, general body maturity. Closer to the truth, perhaps, is the suggestion that each of the systems is regulated by its own biological time clock which, in turn, mesh (some more eccentrically than others) with a general biological time clock. Growing individuals, then, exhibit variation not only in the timing of maturational events, but also in the sequence in which these events occur. Some maturational events show very high correlations among each other and are said to reflect a general growth factor.[24] Maturation of the dentition appears to exhibit a more independent relationship to this general growth factor.

While this study has shown that dental age is a poor indicator of the timing of the circumpuberal mandibular growth spurt, it still remains to be shown whether sizeable

iscrepancies between dental and skeletal age and the tim-ıg of the mandibular spurt are manifested in malocclusions r skeletofacial disharmonies or both.

For present clinical purposes, however, it is recom-ıended that skeletal age as determined from a hand and ırist x-ray be used as a fairly accurate indicator of when a hild is experiencing circumpuberal mandibular length rowth acceleration.

Dr. Liebgott is associate professor, Department of Anatomy, Faculty of Medicine, University of Toronto.

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Surgical endodontics . . .

Continued from page 221

vided for the graduate student showed 40 per cent judging it inadequate. Again, the most prevalent reason (87.5 per cent) was lack of available cases. These responses, as before, were probably from some of the largest cities in the United States. Of the actual number of cases accomplished by the graduate student, the most frequent response was 13 to 15 (45.5 per cent). Of those responses above 15 cases, 20 to 30 cases were indicated, with one school reporting 70 cases.

The major inference of this study is that the surgical endodontic experience of both the graduate and undergraduate student may be lacking. The primary reason is apparently a lack of available patients.

Questions that may need to be examined in depth are:

1. Is it necessary to train general practitioners in surgical endodontics?
2. If it is desirable to train the undergraduate dental student, how can this training best be accomplished in view of the apparent lack of available patients?
3. If there is inadequate dental school experience, should there be a more concerted effort to offer continuing education courses in surgical endodontics?

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6 AAE Membership Roster, Atlanta, 1976, American Association of Endodontists.

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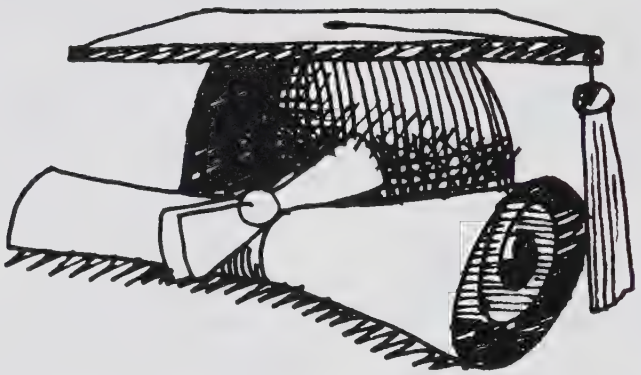

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OFFICES AND PRACTICES

BRITISH COLUMBIA — Abbotsford. Dental offices for rent in a modern professional building in Abbotsford, British Columbia, adjacent to hospital. Panoramic view. Apply to: McCallum Terrace Holdings, 2151 McCallum Rd., Abbotsford, B.C., V2S 3N8.

BRITISH COLUMBIA — Kamloops. Dentist closing office and discontinuing practice. Excellent opportunity for new dentist to acquire very active patient load. Also available are two complete spaceline units that are five years old. Contact: Dr. D. L. Bredo, #8-74 West Seymour St., Kamloops, B.C., or Phone: 374-6669.

BRITISH COLUMBIA — Kamloops. Dentist required for sunny Kamloops. Up to 1100 square feet of space overlooking busy main street will be finished to suit tenant. Other tenants include M.D.'s. For details please write to: Dr. Bruce Dovey, Aspen Medical Centre, 429 Tranquille Road, Kamloops, B.C. V2B 3G9.

BRITISH COLUMBIA — Northern Vancouver Island. Practice for sale. Three operatories equipped with fourth room plumbed and wired. Last year's gross $186,000. Reply to CDA Box Number 1778.

BRITISH COLUMBIA — North West Terrace. Practice for sale. Excellent starter practice for the young graduate. Experienced staff, simple established office routine and preventive oriented practice in four-handed dentistry. Contact: Dr. L. J. Talarico, 10-4546 Park Avenue, Terrace, B.C. V8G 1V4.

BRITISH COLUMBIA — North Shore. For sale: Practice in new building with new equipment. Crown and Bridge and family practice. Two man office. $350,000-$400,000 gross. Reply to: P.O. Box 91603, West Vancouver, B.C. V7V 3P3.

BRITISH COLUMBIA — Victoria. For sale. Two operatory practice in downtown Victoria, with emphasis on relaxed and enjoyable conditions for both patients and staff. Good gross on cash basis. Reply to CDA Box Number 1736.

BRITISH COLUMBIA. High quality, edgewise orthodontic practice in central Vancouver. Anxious for immediate sale due to death of orthodontist. Practice currently being maintained by local orthodontists. Terms of purchase may be arranged. Reply to CDA Box Number 1789.

BRITISH COLUMBIA. Practice grossing over $400,000/yr. suitable for two working partners, or one ambitious individual who wishes to employ associates. Beautiful area of the province out of the rat race of large cities. Reply to CDA Box Number 1773.

ALBERTA — Calgary. Well established eleven year old general practice in Professional Tower of Calgary's largest and busiest shopping complex. A two chair office, efficiently designed in under 600 sq. ft. Annual gross well over one hundred thousand for the past three years. Reply to CDA Box Number 1781.

ALBERTA — Edmonton. For lease, Spruce Grove, located 10 minutes from Edmonton, capital of Alberta. 1600 sq. ft. of office space adjacent to a well established dental practice. Instant success assured by generous referrals from an overloaded practice. For details write to: P.O. Box 810, Spruce Grove, Alberta, T0E 2C0 or phone (403) 963-2996 after 6:00 p.m.

ALBERTA — Edmonton. Busy Edmonton practice. Terms can be negotiated. Please supply references, experience, salary expected, and when available. Phone: (403) 489-7961 Monday-Thursday, or write: Dr. E. Adler, #320 — 8702, Meadowlark Road, Edmonton, Alta. T5R 5W5.

ALBERTA — Edmonton (suburban). Well established family practice for sale in new air-conditioned dental building. Sharing complete floor with three general practitioners and hygienist. Two fully equipped operatories each with X-ray, Dental-Eze, Adec controls and mobiles. Dentist leaving for specialization. Contact: Dr. G. Boychuk, 54 St. Michael Street, St. Albert, Alta. T8N 1C7.

ALBERTA — Hinton. Successful dental practice in town of 8,000, located 15 miles east of Jasper Park Gates. New professional building. Three fully equipped operatories, room for fourth. Modern equipment including Panelipse and G.E. X-ray. Owner will associate for short term; share of building can be included. Contact: Dr. J. Dan Pace, Box 1305, Hinton, Alta. T0E 1B0. Phone: (403) 865-3823.

SASKATCHEWAN — Nipawan. Established dental practice for sale. Most equipment one year old. Two Pelton Executive Units, chairs, lights plus third operatory. Available immediately due to passing of dentist. Excellent hunting and fishing. Reply to: Mrs. N. Cameron, Box 1595, Nipawan, Sask., or phone: (306) 862-4401.

ONTARIO — Fort Frances. Associate opportunity. Very busy modern, 8 chair Dental Centre, urgently requires your skills to practise family dentistry. Community area of 22,000, known for winter-summer resort and sports activities, financial benefits high. Contact: Dr. Bud Danylchuk, phone: (807) 274-9001 or 6756 or Roi Management and Materials Incorporated, Mississauga, Ont., phone: (416) 278-4145.

ONTARIO — Haileybury. Office space for rent at the John McKay-Clements Memorial Medical Arts Centre, situated in the Town of Haileybury. For more information, please contact: Bruce A. Clark, Solicitor, P.O. Box 670, Haileybury, Ont., P0J 1K0, or phone (705) 672-3347.

ONTARIO — London. For sale: Established practice in downtown London. Situated in high rise apartment building with 1,000 sq. ft. Two operatories — one fully equipped. Office only one year old. Everything new. Take over with low initial investment. Phone: (519) 433-7373, or reply to CDA Box Number 1787.

ONTARIO — London Area. Wonderful opportunity. Associate to assume practice immediately, health reasons. New two chair practice situated on Main Street and Highway 8. Phone collect: (519) 527-1530.

ONTARIO — Toronto — Shoppers' World Plaza. (Danforth and Victoria Park). Estate sale: Two brand new S.S. White units. Two operatories. Located in excellent shopping plaza. High gross. Contact: Mrs. Doreen Ray at office (416) 694-4241, home (416) 781-8056 or (416) 789-9700.

ONTARIO — Toronto (Willowdale East). Successful and growing practice for sale, located in modern building, professionally designed, 1085 sq. ft., 4 operatory suite well appointed, 2 matching operatories now equipped and separate x-ray room, good opportunity for 2 practitioners. Contact: Roi Management and Materials Incorporated, Mississauga, Ont. Phone: (416) 278-4145.

ONTARIO — Toronto (Willowdale). For rent: three day a week practice. Period July 1978 to July 1979. Inexpensive. Owner leaving country for one year and wishes replacement in his absence. Possibility of sale if terms can be reached. Contact: Dr. Barry Brooks, 5927 Yonge Street, Willowdale, Ont., or phone: (416) 223-0598.

ONTARIO — Toronto Midtown. Established restorative practice for sale, attractive facility, professional setting, good lease, options and expansion opportunities, two modern operatories, X-ray room, steady new patient flow, high earnings. For information call: Roi Management Consultants, Mississauga, Ont. Phone: (416) 278-4145.

ONTARIO —Warkworth. Dental office for rent in new medical building in underserviced rural area halfway between Belleville and Peterborough. Reply to: Mrs. Grace Dollimore, Management Committee of Warkworth Medical Centre, Warkworth, Ont., or phone (705) 924-2074.

ONTARIO — Windsor. Space available for specialist in periodontics, pedodontics or orthodontics in modern preventive oriented suburban office. Full-time hygienist on staff. Contact: Dr. Michael Malowitz, 7610 Tecumseh Road East, Suite 207, Windsor, Ont., N8T 1E9, or phone: (519) 944-2424.

ONTARIO — Windsor. For sale: high gross, well-established preventive oriented family practice; 2400 sq. ft., 7 operatories — 4 fully equipped; large business office; 2 private offices; consultation room; analgesia; panelipse; audio visual; modern, well decorated lower level of two storey building. Unique opportunity for 1 or 2 dentists. Owner returning to postgraduate school. Building also available. Contact: Dr. J. Guilzon (519) 258-2253.

ONTARIO — Modern 3 operatory practice for sale. Room for expansion available if desired. Fully equipped with Dental-Eze chairs, Adec carts, central vacuum, airconditioning, Philip x-ray and nitrous. Hospital privileges available. Excellent facilities in a modern medical centre, just half-hour from central Toronto. For further details, e.g., gross income, lease, etc. reply to CDA Box Number 1769.

ONTARIO — Orthodontic practice for sale, Ontario city, highly successful, well established practice, well designed facilities, located in modern Medical-Dental building, well equipped, multi-chair treatment area, x-ray dept. and laboratory, modern techniques, exceptionally high earnings, program for buyer to associate, term plan to buy out of earnings. For confidential information contact: Roi Management and Materials Incorporated, Mississauga, Ont. Phone (416) 278-4145.

ONTARIO — For sale: 30 minutes north of Toronto. Professional building, high gross dental practice and management company. Suitable for group practice or partnership. Reply to CDA Box Number 1786.

ONTARIO — Practice for sale: Busy rural practice, grossing $135,000 plus, located in a beautiful year-round recreational area, less than two hours east of Toronto. Hospital privileges available. Loyal and efficient staff. Price: $25,000. Reply to CDA Box Number 1797.

ONTARIO — Private sale. Restored century home, with additional 1,000 ft. of self contained office facilities. 130 ft. water front property on West Lake, located in the village of Wellington, Prince Edward County. Area in great need of dental services. Health reasons for sale. Photographs and description of property on request. Reply to CDA Box Number 1794.

ONTARIO (Southwestern). Excellent opportunity. For sale: Three-year-old preventive practice in professional building. New four-handed equipment in stylish professionally decorated office. Very high income. Open concept with room for expansion. Small city, thirty miles from large urban centre. Reply to CDA Box Number 1796.

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BRITISH COLUMBIA — Kamloops. Associate wanted for preventive, family-oriented practice. Three operatories, full time hygienist. Phone: (604) 554-2032 or write, Dr. R. J. Holditch, 31 — 750 Fortune Drive, Kamloops, B.C.

BRITISH COLUMBIA — North West Terrace. Full time associate required to take over an active full time practice with experienced help to start. Good area for the outdoor sportsman. Reply to CDA Box Number 1790.

BRITISH COLUMBIA — Victoria. Associate required for a long established practice. Some capital required. Could lead to outright purchase at a later date. Reply to CDA Box Number 1785.

ALBERTA — Calgary. Associate required in preventive-oriented practice. Contact: Dr. J.T. Boulton, No. 7 Parkdale Cres. N.W., Calgary, Alta, T2N 3T8.

ALBERTA — Calgary. Associateship available for established dental practice. Four operatory office and full time dental hygienist. Please direct enquiries to: Dr. A.F. Brothers, 7524 Elbow Drive S.W., Calgary, Alta. T2V 1K1.

ALBERTA — Grande Prairie. Associate wanted for busy 15 year practice in city of 18,000. Modern 1500 sq. ft., 3 operatory office recently redecorated and re-equipped. City has all you could ask for — skiing, hunting, curling, college, auditorium, etc. Excellent terms. Contact: Dr. H. J. Quinn, 9923A — 100 Avenue, Grande Prairie, Alta. Phone: (403) 532-3520 office, or (403) 532-5165 home.

ONTARIO — London. Associate wanted for large general practice. Practice has had an associate for 12 years. Present owner reaching retirement age, and would sell practice within two or three years. Good opportunity for someone looking to relocate. Contact: Dr. L.V. Shankman, 714 Dundas St., London, Ontario. Phone: (519) 432-1531.

ONTARIO — Niagara Peninsula. Associate wanted for quality, conscientious, preventive-oriented, specialty and general dentistry group practice. This is a successful established practice with ultra modern facilities. Start immediately or in June 1978. Contact: Dr. Ivan Hrabowsky, 42 St. Paul St., St. Catharines, Ont. L2R 3N4, phone: (416) 688-1500.

ONTARIO — Northwest London. Associate required for general practice. Details to be discussed. Please contact: Dr. W. J. A. Baynton. Phone: (519) 433-6175 or 471-4661 after 5:30 p.m.

ONTARIO — Perth. Associate and hygienist wanted for busy group in small Eastern Ontario town. Panelipse hygiene room and six operatories. Excellent location for summer and winter recreation. Hour drive to Ottawa or Kingston. Partnership arrangement available, associate. Apply to: Drs. Chaplin and Lightford, Tay Dental Group, P.O. Box 7, Perth, Ont., K7H 3E2 or phone: (613) 267-3551.

ONTARIO — Timmins. Associate required. Opportunity to perform all phases of dentistry in a modern well equipped office. Phone: collect (705) 267-1020.

ONTARIO — Windsor. Associate wanted for a large modern practice. Excellent opportunity for an ambitious individual. For more details, reply to CDA Box Number 1795.

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ROTATING DENTAL INTERNSHIP in General Hospital available at University of Alberta Hospital in Edmonton. June 1st for 1 year. Apply: Dr. K.M. Gordon, Dental Dept., University of Alberta Hospital, 112 Street and 85 Avenue, Edmonton, Alta. or phone (403) 432-6853.

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Saskatchewan S0J 2W0

or phone collect person to person

Dr. H. Thomson
306-498-2136

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BRITISH COLUMBIA — Burns Lake. Dentist wanted to practise in the Village of Burns Lake, in northern British Columbia. Office space is available in a new Medical Dental Building, constructed June '77, and would suitably accommodate one or two dentists. It is located directly across from the hospital. The doctors, presently in the building, would be willing to provide anesthetic services for the dentists, either in the clinic or the hospital. This is an ideal opportunity for a young dentist, in an expanding town, in one of the most beautiful recreational areas of British Columbia. For more details contact: Gerobeco Holdings Ltd., P.O. Box 167, Burns Lake, B.C., V0J 1E0.

ALBERTA — Grande Prairie. Hygienist wanted for modern 3 dentist office in beautiful city of 18,000. All kinds of recreation in the city and area. Salary or commission if preferred. Separate operatory and opportunity to practise all areas of training. Contact: Dr. H. J. Quinn, 9923A — 100 Avenue, Grande Prairie, Alta. Phone (403) 532-3520 or (403) 532-5165.

ALBERTA — Hanna. Dentist required immediately for new Medical-Dental Clinic in Hanna, a growing town. Over 800 sq. ft. of working space available for rent or purchase. Combined receptionist and waiting room area. Population to be served, approximately 14,000. Apply Box 700, Hanna, Alta. T0J 1P0.

ALBERTA — Pincher Creek. Hygienist and certified intra-oral assistant needed immediately in modern three-dentist practice close to major city. Salary and benefits negotiable. All auxiliaries get a profit share. Please reply in writing to Box 820, Pincher Creek, Alberta, T0K 1W0 or phone: (403) 627-3290.

SASKATCHEWAN — Ponteix. Excellent opportunity for dentist in a progressive town, population 900, serving rural area population 5,000, closest dentist 55 miles. Town streets paved, sewer and water facilities throughout town. New modern filtration plant just completed, artificial ice skating and curling rinks; heated swimming pool, paddling pool; golf course — regional park on edge of town, bowling alley, theatre, cable T.V., natural gas, modern hospital, kindergarten; elementary school, high school, air strip, large complete business section; 2 churches, town well treed. Interested parties please contact — Ted Kouri, (306) 625-3551 or Town Hall 625-3222.

MANITOBA — Winnipeg. Oral surgeon certified to practise in Manitoba required for a busy practice. Object, partnership. Please submit qualifications and curriculum vitae and recent photograph. Reply to CDA Box Number 1791.

ONTARIO Glifford. Dentist wanted for individual practice in new facilities at Glifford and Community Medical Centre. Apply to: Arthur C. Oehm, Box 159, Glifford, Ont., N0G 1M0 or telephone (519) 327-8397, evenings (519) 327-8307.

ONTARIO — Toronto. Oral surgeon wanted for busy practice in Toronto and vicinity. A knowledge of general anaesthesia essential. Send resume to CDA Box Number 1767.

ONTARIO (NORTHWESTERN). Sioux Lookout requires a dentist. Two fully equipped, modern operatories located in the General Hospital are available at a minimal monthly rate. A dentist locating in Sioux Lookout is also eligible for an $18,000 government grant or a guaranteed $28,000 annual income. For more information please contact: Town Clerk, Town of Sioux Lookout, Box 158, Sioux Lookout, Ont. P0V 2T0.

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas. Locations are available throughout Ontario. Incentive grants, payable over four years, are $18,000 in Northern Ontario, and $14,000 in Southern Ontario. Alternatively, a guaranteed net professional income of $28,000 per annum is offered in Northern Ontario. A limited number of salaried positions are open on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 7 Overlea Blvd., Toronto, Ont., M4H 1A9 or phone: (416) 965-5036.

QUEBEC — Terrebonne. Je cherche dentiste pour travailler à mon bureau 2 jours par semaine — 2 Bureaux bien organisés, secrétaire, assistante, hygiéniste, cavitron, etc., etc. Etabli depuis 30 ans. Gros chiffre d'affaire. Possibilité d'acheter. Appeler Dr. G. Moro, Terrebonne, Qué. (514) 471-3231 ou 471-8519.

NOVA SCOTIA — Pugwash requires dentist. Ideal location and opportunity for the dentist enjoying a rural setting. Facts on swimming, golf, skiing, schools, churches, etc., will be found in brochure. One modern operatory; second will be added. Contact: J. R. MacQuarrie, Box 52, Pugwash, N.S. B0K 1L0. Phone: (902) 243-2069 or Robert G. Rix, D.D.S., 370 Pictou Road, Bible Hill, Nova Scotia. Phone: (902) 895-3977.

OPPORTUNITIES WANTED

BRITISH COLUMBIA — Vancouver. Young general practitioner with four years' experience in a preventive-oriented modern environment, wishes to buy a similar practice with a view to take over at the end of June. Reply to CDA Box Number 1782.

ALBERTA — Practitioner with five years experience, presently serving rural area, seeks position in larger centre. Preference given to salaried position but would consider private practice association under suitable terms. Presently hold Alberta license and NDEB certificate. Preferably Alberta but willing to locate anywhere in Canada given desired opportunity. Reply to CDA Box Number 1788.

PAEDODONTIST, aged 27, married, completing two year board-approved specialty program June 1978. Seeking associateship and/or partnership with a paedodontist or group. Passed Canadian National Dental Examining Board. Curriculum Vitae on request. Reply to CDA Box Number 1756.

PROSTHODONTIST, aged 28, single, completing two years graduate studies in Fixed and Removable, June 1978 with M.S. Have passed N.D.E.B. Seeks association with Prosthodontist or group practice in Montreal or any other province. Contact: Dr. Samir Baalbaki, Northwestern University Dental School, 311 East Chicago Avenue, Chicago, IL 60611.

EQUIPMENT

BRITISH COLUMBIA — Burnaby. Wanted to buy: Denar or Stuart Articulator and/or Pantograph. Details including price and model number to: Dr. George Wilkins, 143 Lougheed Mall, Burnaby, B.C. V3J 1N4. Phone: (604) 937-3606.

BRITISH COLUMBIA — Duncan. Complete office equipment. Chairs, lights, cabinets, compressor, etc. Lab-lathe, casting machine and all X-ray, including all dark room equipment. Business office — copy machine, bookkeeping, etc. Good assortment of supplies. $18,000 with terms. Write to: 5873 Sycamore Street, Duncan, B.C. V9L 3E3 or phone: (604) 746-6010.

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Position available September 1, 1978. Send curriculum vitae to Dr. J.W. Stamm, Faculty of Dentistry, McGill University, 3640 University Street, Montreal, Canada, H3A 2B2.

UNIVERSITY OF ALBERTA

Faculty of Dentistry

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Department of Oral Biology
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Edmonton, Alberta
T6G 2N8

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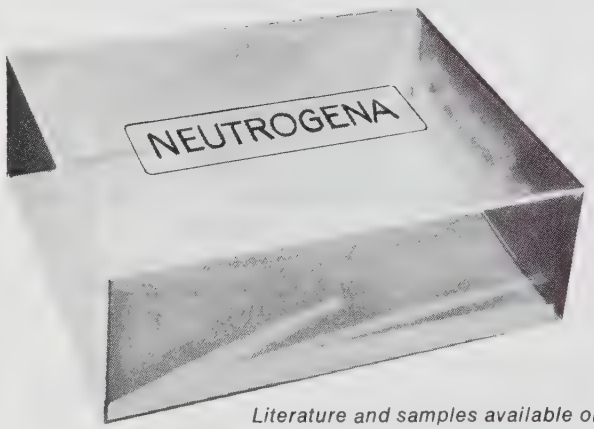

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FULL-TIME position for PERIODONTIST

Candidates must be eligible for licensure by Order of Dentists of Quebec, have a National Dental Examining Board Certificate and be prepared to fulfill French language requirements enabling him/her to teach clinically and enjoy consulting and private practice privileges. Temporary license would be granted in the interim.

Academic rank and duties: Assistant Professor to participate in the undergraduate teaching of periodontics; research activities encouraged. Salary commensurate with teaching and clinical experience. Please send curriculum vitae and reference to Dr. R.F. Harvey, Faculty of Dentistry, McGill University, 3640 University Street, Montreal, P.Q. H3A 2B2.

CANADIAN DENTAL ASSOCIATION

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L'ASSOCIATION DENTAIRE CANADIENNE

WINNIPEG, MANITOBA

REGISTRATION FORM

For ADVANCE REGISTRATION and DISCOUNT return this form with appropriate fees BEFORE AUGUST 10, 1978 to

1978 CDA Convention Committee
308 Kennedy Street, Winnipeg, Manitoba
Canada R3B 2M6

Please use TYPEWRITER or BLOCK LETTERS

Surname ..... Preferred First Name ..... Prof./Dr./Mr./Mrs./Miss/Ms.

Address .....

Hotel Reservation Form returned ☐ Yes ☐ No Accommodation required ☐ Yes ☐ No

Additional Registrations (No fee for spouse or family members):

Spouse ..... Family Member(s) .....
Preferred First Name

REGISTRATION FEE ENTITLES DENTISTS AND AUXILIARIES TO ATTEND:

- Sunday evening welcome reception (Spouse Welcome)
- *• Luncheons on Monday, Tuesday, Wednesday
- Tuesday evening social (Spouse Welcome)

* Tickets for spouse may be purchased at Registration Desk.

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Canadian Non-CDA Members: $135. BEFORE or $155. AFTER August 10, 1978 ..... $ _____

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- Tuesday Evening Social
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CANCELLATION: Money refunded ONLY if cancelled prior to August 10, 1978.

Signature ..... Date .....

CANADIAN DENTAL ASSOCIATION

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WINNIPEG, MANITOB

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- à la soirée d'accueil du dimanche soir (epoux(ses) bienvenus(es))
- * aux déjeuners des lundi, mardi et mercredi
- à la soirée intime du mardi, (epoux(ses) bienvenus(es))

* Les billets pour epoux(ses) peuvent être obtenus au bureau d'inscription.

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Signature ..... Date .....

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NATIONAL CONVENTION
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WINNIPEG, MANITOBA

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Canada R3B 2M6

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City .....Prov.....Postal Code.....

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.....

☐ Date Arriving .....A.M. P.M. .....

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Date Departing .....A.M. P.M. .....

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1st .....

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3rd .....

Please enter my reservations at the above hotel for:

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* Convention Headquarters ** CDHA Hotel Headquarters *** CDNAA Hotel Headquarters

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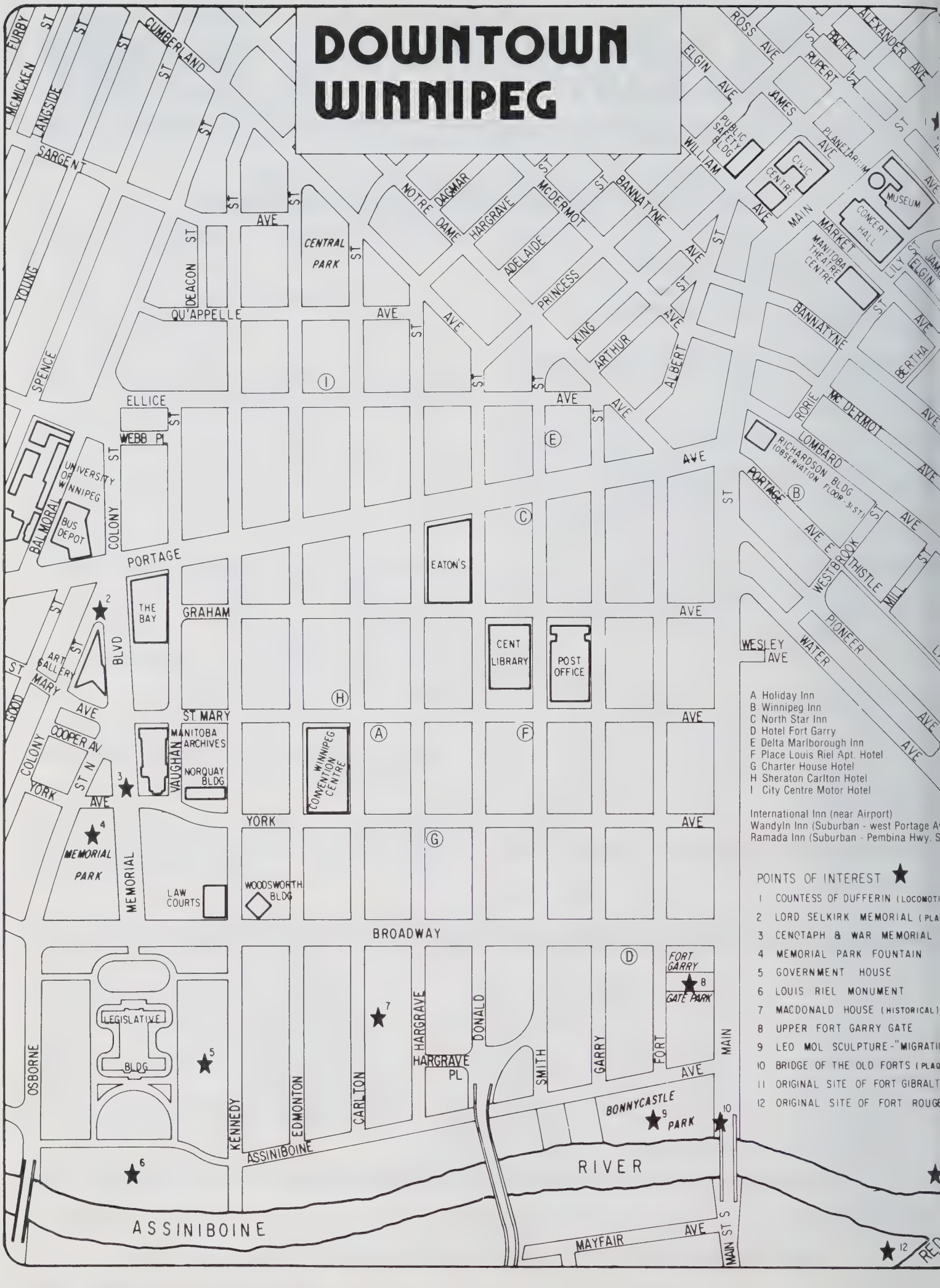
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June/Juin 1978/Volume 44/No. 6

Canadian Dental Association/Association Dentaire Canadienne

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emporary fixed prostheses:
Recording and finishing
he margins

Studies of permanent tooth anomalies
n 7,886 Canadian individuals

he effectiveness of a chemically polymerized sealant
n preventing occlusal caries: Two year results

acteurs à considérer pour assurer une protection
déquate à la pulpe lors de la préparation d'une dent
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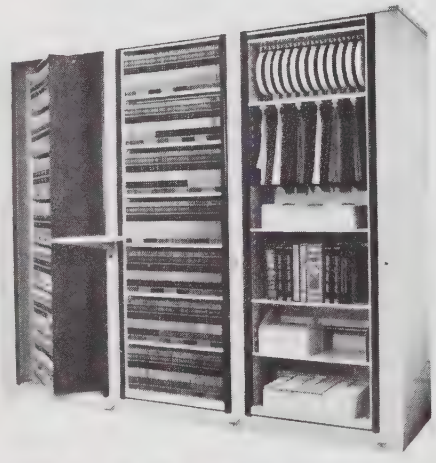

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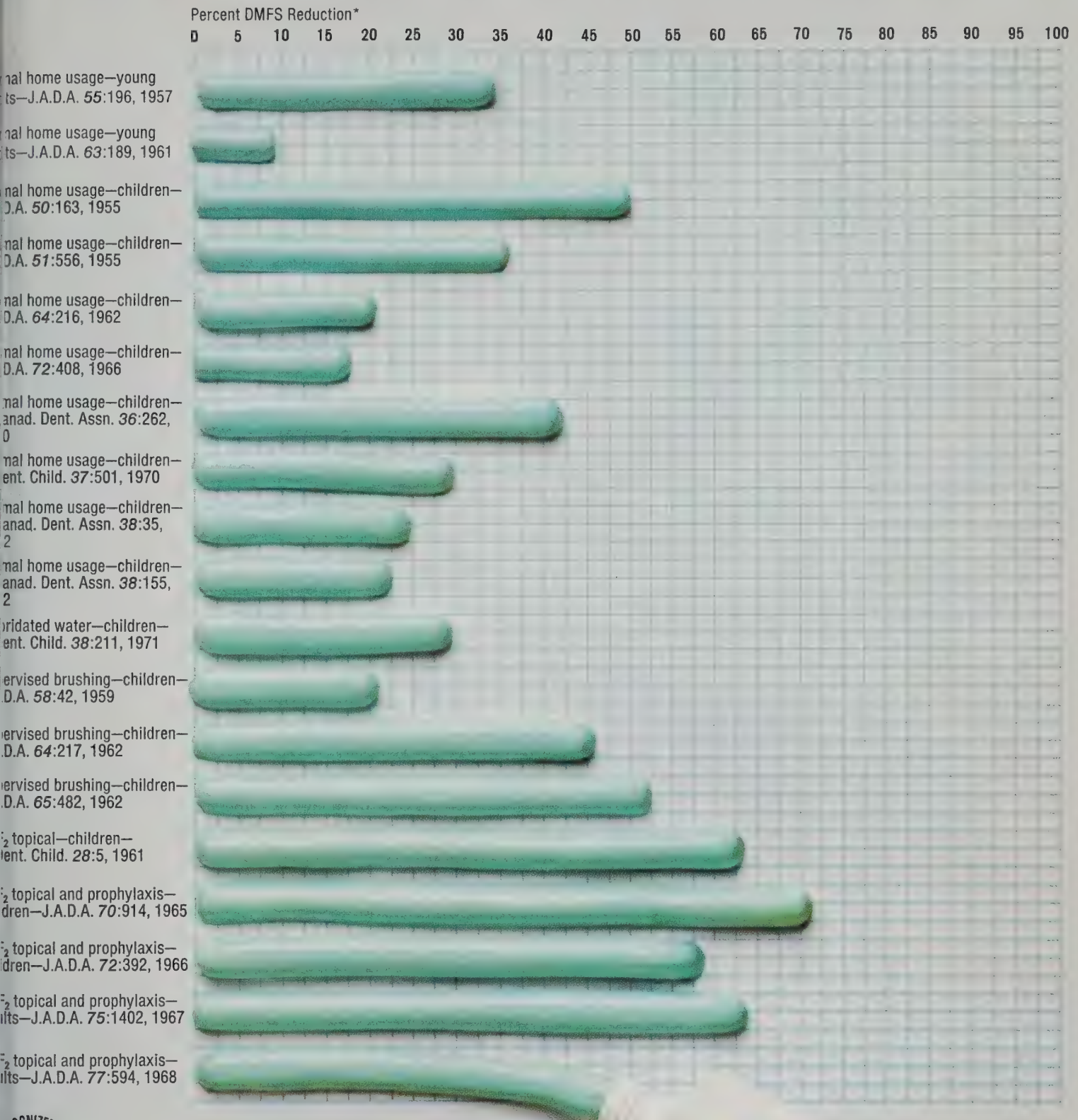

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JOURNAL

of the Canadian Dental Association
de l'Association Dentaire Canadienne
June/Juin 1978/Volume 44/No. 6

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13
Contact: Dr. Ralph Crawford, Convention Chairman, Manitoba Dental Association, 308 Kennedy Street, Winnipeg R3B 2M6.

Canadian Meetings

Fourth Canadian Cleft Palate Conference, University of Western Ontario, London, June 16-17, 1978. Contact: Dr. R. Latham, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Association of Canadian Faculties of Dentistry/L'Association des Facultés Dentaires du Canada, 10th Biennial Conference on Canadian Dental Research and Education, University of Western Ontario, London, June 19-21, 1978. The research sessions will consist of symposia on "The Tongue" and "Denture and Pulp", followed by ten 15-minute research papers presented by speakers from the dental schools. The education sessions will examine "Clinical Evaluation Systems in Canada" and "Dental Aptitude Test Programs". Accommodation for registrants is available at Delaware Hall, the same facility as the Conference. Contact: ACFD/AFDC Registration and Accommodation, Room 1003, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 5B7.

Atlantic Provinces Dental Convention, Charlottetown, Prince Edward Island, July 2-5, 1978. Contact: Dr. David O'Connell, 13 Green Leaf Drive, Sherwood, Prince Edward Island.

Pacific Dental Federation Convention, Vancouver, July 23-26, 1978. Contact: Dr. Ken Neuman, President, Pacific Dental Federation, 1125 West 8th Avenue, Vancouver, British Columbia V6H 3N4.

Canadian Society of Oral Surgeons, Scientific Workshop and Meeting, Winnipeg, September 8-11, 1978. Contact: Dr. Colin Foster, 521-233 Kennedy Street, Winnipeg, Manitoba R3C 3S5.

Canadian Dental Hygienists' Association Annual Convention, Winnipeg, Manitoba, September 8-13, 1978. Contact: Diane Girardin, Convention Chairman 1978, Box 22, LaSalle, Manitoba R6G 1B0.

Canadian Academy of Oral Radiology, 1978 Annual Meeting, Winnipeg, Manitoba, September 10, 1978. Contact: Dr. C. G. Baker, Head, Section of Radiology, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Ave., Winnipeg; or, Dr. C. E. Hawrish, 5064 Dentistry Pharmacy Centre, University of Alberta, Edmonton.

Canadian Association of Orthodontists, Annual Meeting, Holiday Inn Convention Centre Complex, Winnipeg, September 10-13, 1978, in conjunction with the Canadian Dental Association Convention. Contact: Dr. M. L. Drosdewich, 605-225 Vaughan Street, Winnipeg, Manitoba, or Dr. J. J. Schachter, Box 952, Saskatoon, Saskatchewan S7K 4H7.

Pacific Coast Society of Orthodontists, 1978 Convention, Hyatt Regency Hotel, Vancouver, British Columbia, October 1-5, 1978. Contact: Dr. J. G. Ryan, #1330 - 925 W. Georgia St., Vancouver, British Columbia V6C 1R5.

Third Canadian Congress of Dentistry for Children, Vancouver, April 6-8, 1979. Contact: Dr. G. M. Jinks, Suite 301, 1701 West Broadway, Vancouver, British Columbia V6J 1Y3.

International Meetings

Congresso da Conferação Latino-Americana de Protesistas Dentais, Convention Hall of Anhembi Park, São Paulo, Brazil, July 8-14, 1978. Contact: X Congresso da Confederação Latino-Americana de Tecnicos Dentais, 01302 Rua da Consolacao, 2416, São Paulo, Brazil.

International Symposia, commemorating the 25th anniversary of the Hebrew University — Hadassah School of Dental Medicine, Jerusalem, Israel, July 9-12, 1978. Theme: "Future perspectives of dentistry". Contact: Dr. Irwin Ship, U.S. Coordinator, 1611 Broad-Locust Building, Philadelphia, Pennsylvania 19102. Telephone: (215) 735-4183.

New Zealand Dental Association, 9th Biennial Conference, Christchurch, August 21-24, 1978. Contact: H. G. Knowles, Honorary Secretary, NZDA Biennial Conference Committee, P.O. Box 1301, Christchurch, New Zealand.

11th International Congress of Nutrition, Rio de Janeiro, Brazil, August 22–September 1, 1978. Contact: Dr. J. A. Campbell, Treasurer, International Union of Nutritional Sciences, 1785 Riverside Drive, Suite 2204, Ottawa, Ontario K1G 3T6.

International Association for the Study of Pain, Satellite Symposium, Geneva Park Conference Centre, Longford Mills, Ontario, Canada, August

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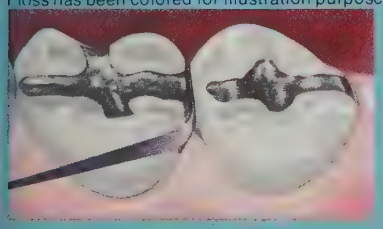

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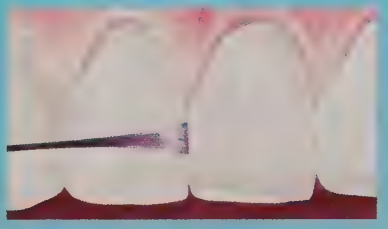

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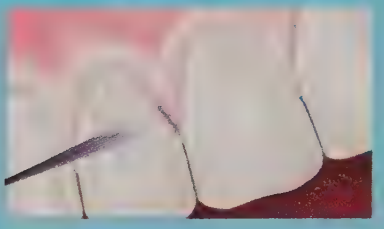

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25-27, 1978. Theme: "Mechanisms and treatment of dental pain". Contact: Dr. R. Dubner, National Institute of Dental Research, Building 30, Room B-18, National Institutes of Health, Bethesda, Maryland 20014, U.S.A.

European Meeting of Oral Pathology, Amsterdam, August 29 - September 1, 1978. An advanced course in clinical and histological oral pathology. Contact: Miss R. Mooijen, Department of Oral Pathology, Free University, De Boelelaan 1117, Amsterdam, the Netherlands.

International Association on Dentistry for the Handicapped, 4th International Congress, London, England, September 12-15, 1978. Contact: Conference Office, 4th ICDH, Dental School and Hospital, University of Birmingham, St. Chad's Queensway, Birmingham B4 6NN, England.

North Dakota Invitational Conference on Health Science Education, Grand Forks, North Dakota, September 20-21, 1978. Theme: "Evaluation in Health Science Education". Contact: Office of Medical Education and Evaluation, UND School of Medicine, 501 Columbia Road, Room 121, Grand Forks, North Dakota 58202.

Sixth International Conference on Endodontics, School of Dental Medicine, University of Pennsylvania, Philadelphia, September 21-24, 1978. Theme: "Mechanism and control of pain". Contact: Dr. Louis Grossman, University of Pennsylvania School of Dental Medicine, 4001 Spruce Street, Philadelphia, Pennsylvania 19104.

European Association for Maxillo-Facial Surgery, 4th Congress, Venice, Italy, September 25-30, 1978. Contact: Maxillo-Facial and Stomatology Department, "S. Bortolo" Regional Hospital, 36100 Vicenza, Italy.

Fédération Dentaire Internationale, 66th Annual World Dental Congress, Madrid, Spain, September 25-30, 1978. Contact: Lawson, McKay Tours Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9. Telephone: (416) 364-0622.

American Academy of Periodontology, 64th Annual Session, Phoenix Civic Plaza, Phoenix, Arizona, September 27-30, 1978. Contact: American Academy of Periodontology, 211 East Chicago Avenue, Room 924, Chicago, Illinois 60611.

International Symposium on Recent Advances in Clinical Periodontology, Tel-Aviv University Dental School, Israel, October, 1978. Contact: Dr. Hart Levine, 2006 Bathurst St., Toronto, Ontario M5P 3L1. Tel. (416) 781-2006.

American Institute of Oral Biology, 35th Anniversary Meeting, Spa Hotel, Palm Springs, California, October 6-10, 1978. Contact: Executive Secretary, American Institue of Oral Biology, P.O. Box 481, South Laguna, California 92677.

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"Participate in '78" is the theme of the 1978 National Convention of the Canadian Dental Association to be held in Winnipeg, September 10-13. The theme is reflected throughout the four-day convention agenda: in the stimulating scientific program featuring internationally renowned speakers, as well as in the exciting calendar of social events.

The convention will get underway Sunday, September 10, at the Winnipeg Convention Centre with cocktails preceding the official opening ceremonies at 8:00 p.m. The ceremonies will be followed by an "Ethnic Festival", an evening of entertainment, dancing and culinary delights from the four corners of the world designed to give visitors a pleasant sampling of Winnipeg's ethnic mosaic. Winnipeg has long been proud of its multicultural heritage and actively promotes the retention of old world traditions and foods through its annual week-long "ethnic-feast" folklorama. This informal evening will allow delegates to mingle in a casual atmosphere and renew old acquaintances and make new friends.

The official opening of the exhibits will also take place on Sunday at 5:00 p.m. in Hall "B" of the Winnipeg Convention Centre.

The scientific program will be launched Monday morning and will continue through to Wednesday afternoon. The gala President's Ball, a CDA convention tradition, will be held Monday evening and will feature gourmet dining and the opportunity to dance to the internationally famous Duke Ellington Orchestra, directed by Mercer Ellington.

The wind-up event of the social program will be held Tuesday evening and details are being kept under wraps. In 1970, when the CDA convention was last held in Winnipeg, the wind-up event treated 1200 people to an open barbecue, two live bands, a beer garden and an evening they're still talking about. The social committee assures us that this will seem tame in 1978!

A number of specialty groups will be holding their annual meetings in Winnipeg in conjunction with the CDA National Convention. These include: the Canadian Academy of Paedodontics; the Canadian Association of Orthodontists; the Canadian Society of Oral Surgeons; the Royal College of Dentists of Canada; the Canadian Dental Hygienists' Association; and the Canadian Dental Nurses and Assistants Association.

Further details of the CDA Convention program and the programs of the specialty groups will be presented in the next two issues of the Journal.

Plan to "Participate in '78"! Mark your calendar now for the 1978 CDA National Convention in Winnipeg, September 10-13. Registration and hotel reservation forms are included at the back of this issue for your convenience.

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PROVINCIAL LOTTERY HEALTH RESEARCH AWARDS

Provincial Lottery Health Research Awards totalling in excess of $3.1 million were announced recently by Ontario Health Minister Dennis Timbrell. Awards were made to nine voluntary organizations, eight health research scientists, and a district health council.

"The use of lottery funds to support health research in areas of highest provincial priority," said Mr. Timbrell, "illustrates my ministry's commitment to seek continued improvements in the health system. We recognize the need to develop and support a corps of health research workers. These awards will contribute to sustaining the strong research base in this province, particularly in a time of fiscal restraint."

The awards announced today are made under three programs: block-grants to research organizations, health research scientists awards, and district health council awards.

The eight health research scientists awards total nearly $1.1 million. Each award is for three years and provides salaries and a research services budget for each investigator up to a maximum commitment of $175,000 per grant. Awards are made to establish two new research positions in clinical research or in design, measurement and evaluation research at each of the health sciences complexes in Ontario.

The University of Toronto received one of these awards to appoint Robert M. Pilliar to the Faculty of Dentistry commencing July 1. Dr. Pilliar's area of work will be in the field of biomaterials, as applied to dentistry. He will also act as a resource person between dentistry, metallurgy and material science, and the Institute of Biomedical Engineering. Also, Dr. Pilliar will undertake research studies, direct clinical research, supervise graduate students and contribute to the teaching of biomaterials. This position would allow the faculty to continue its leadership in this field.

The first District Health Council Award for research projects undertaken by district health councils was granted to the Manitoulin-Sudbury District Health Council. The award of $51,150 is to study dental health levels and treatment needs of elementary school children.

Each of the applications in the three program areas have been subjected to peer review by the ministry's Provincial Lottery Advisory Committee chaired by W. Alan Backley, Deputy Minister of Health. They have also been assessed by individual grants review panels established for each grant program. In addition, successful agencies receiving block-grants have completed requirements for external evaluation, and were visited by an expert evaluation committee.

The Executive Director of the Canadian Dental Association, Mr. Lloyd Stevenson (centre), was a recent Ottawa visitor to the touring Royal Hudson Steam Train. On the occasion he received a brass spike humidor from Captain Cook and Mr. John Plul (left), Director of Attractions and Special Events, Tourism British Columbia. The first humidor was given to Premier Bennett of B.C., the second to Prime Minister Trudeau and Mr. Stevenson was presented with the third. The Canadian Dental Association will be holding its Annual Convention in Vancouver in September 1983. The historic Royal Hudson train embarked on a 34-day spring tour of cities in Canada and the U.S. to invite visitors to attend the Captain Cook Bicentennial celebrations taking place throughout the province in 1978.

Two Canadian Clinicians honoured in Atlanta

Dr. Ronald Jordan and Dr. Paul Chapnick were presented with the Thomas P. Hinman Medallion for outstanding contribution to dental progress. The awards were presented at The 66th Annual Hinman Meeting March 18-22 where more than 12,000 dentists and auxiliaries were registered. The meeting was sponsored by the 5th District Dental Society of Georgia.

Dr. Jordan is Professor and Chairman, Department of Restorative Dentistry, University of Western Ontario. Dr. Chapnick is Chief of Oral Surgery, Mount Sinai Hospital, Toronto and associate at the University of Toronto. He is currently serving as President of Alpha Omega-Toronto Alumni and is also Ontario Regent.

Among the other recipients of this recognition were Dr. Peter Dawson, Dr. Herman Corn, Dr. Ralph W. Phillips, Dr. Harold Gelb, Dr. Herb Schilder and Dr. Morton Amsterdam.

Mr. Bob Hope received the first Distinguished Service Medal of the Fifth District, and Washington columnist Jack Anderson gave the opening address and also received the Hinman Medal.

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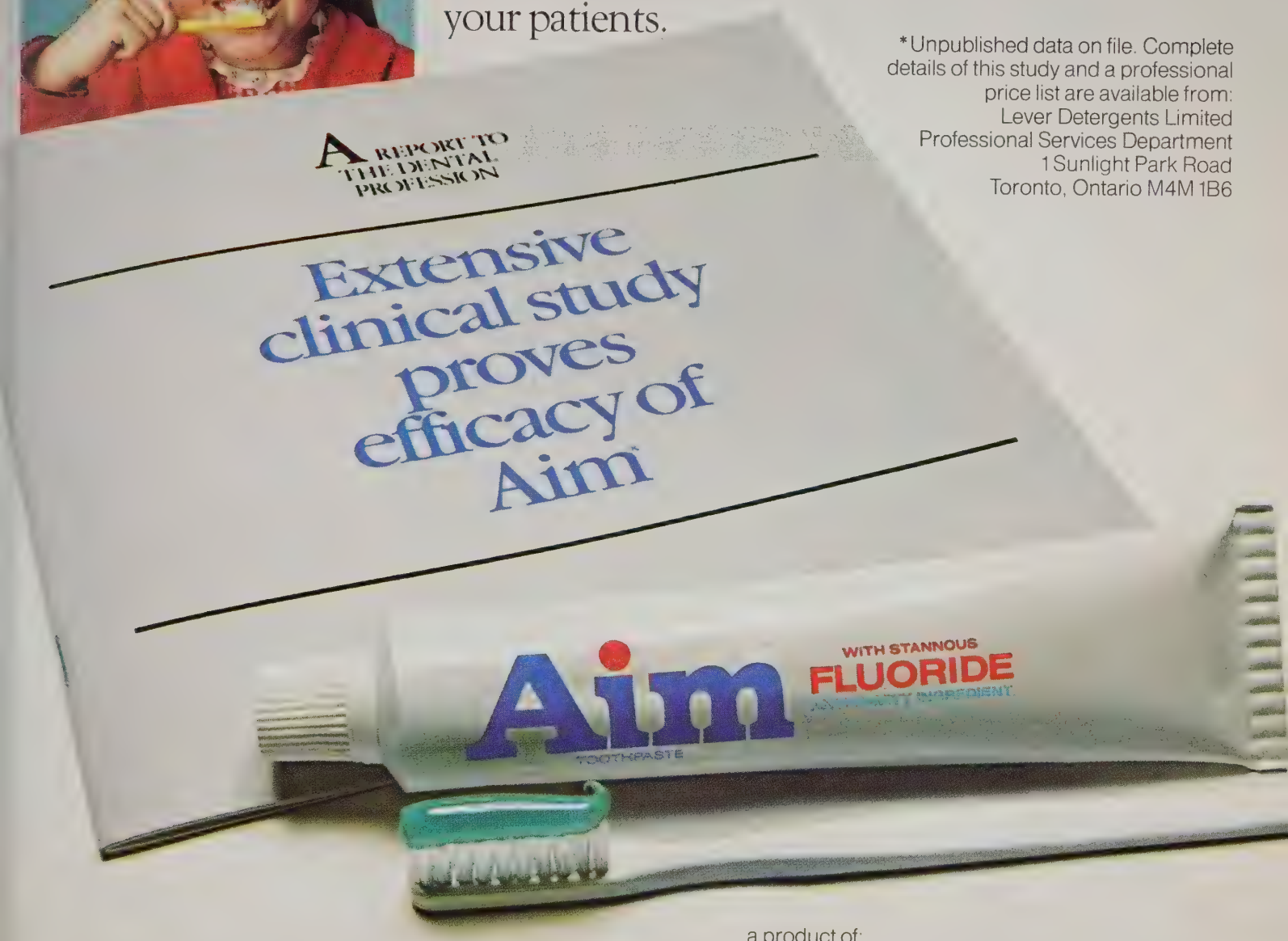

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ENTRIES INVITED FOR COMMUNITY PREVENTIVE DENTISTRY AWARDS

The American Dental Association announces that entries now are being accepted for the third annual ADA Community Preventive Dentistry Award Program.

The program, funded by the Johnson and Johnson Company, recognizes and rewards those who have created and implemented significant community preventive dentistry projects. A $2,000 award will be presented to the winner; $300 awards may be granted for other meritorious entries.

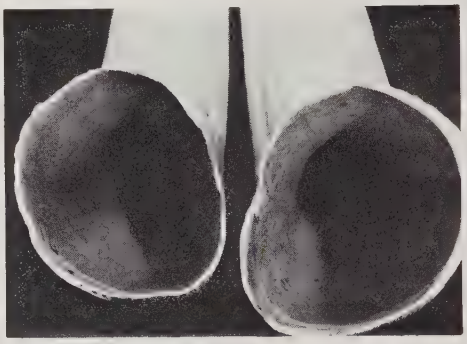
Eligibility is not limited to dental personnel. Any individual or organization responsible for creating and implementing a community program concerned with some aspect of preventive dentistry may enter. Appropriate community activities include school programs, programs for such special population groups as the elderly or handicapped, media public information programs and private practitioners' community education programs. Preventive dentistry includes oral hygiene instruction, plaque control, uses of fluorides and sealants, relevant patient motivation and nutrition education.

Award-winning entries in 1977 were:

- Tattle Tooth, a statewide dental health education program for Texas K-12 students developed by the Texas Dental Association, Texas Department of Health Resources and Texas Education Agency;
- A dental health education program initiated by a Canadian dental hygienist on Tortola, an island in the British Virgin Islands that had no preventive dental services or school dental health education program;
- The University of Maryland's community preventive dentistry clerkship program, which prepared volunteer senior dental students to plan and deliver primary preventive dental services to target community groups using a team approach and which provided such services for 1,675 Baltimore residents in winter-spring, 1977.

Entry applications and information brochures are available from the Council on Dental Health and Health Planning, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611. Entries must be submitted through a state or local dental society, dental school or dental director and must be postmarked by August 15, 1978.

The shorter tusk weighs 21 Kgm and measures 12.7 metres in length, while the longer tusk weighs 25 Kgm and is 13 metres long.



This end-on view of the tusks reveals the open apical "foramina" of the continually growing tusks which lack defined roots. The pulp chambers seen here present an elephantine challenge to the endodontist.

GOLDEN JUBILEE GIFT TO UNIVERSITY

The pair of elephant tusks shown above are the Alberta Dental Association's commemorative gift to the University of Alberta's Faculty of Dentistry on the occasion of its golden jubilee celebrations held last year.

The tusks are those of an African bull elephant acquired from the Kruger National Park, South Africa, where a culling programme to control the elephant population to prevent overgrazing is carried out. The tusks are enlarged lateral incisor teeth that are of continuous growth throughout life. The major portion of the tusks is composed of dentine, known colloquially as ivory. They possess large pulp chambers, and only a slight veneer of enamel. The record size for a modern bull elephant tusk is 11½ feet (3.5 metres) in length, weighing 226 lbs., while the record for a cow is 6 ft. 7 in. length and 52 lb. weight. Most elephants use their right tusks more frequently than their left, causing attritional wear to shorten the right tusk more rapidly than the left.

This presentation of tusks to the Faculty of Dentistry at long last legitimizes the concept of the University being an Ivory Tower of Learning.

Reference: G. H. Sperber, Tusks, *Can. Dent. J.* 42:257 May, 1976.

Boston area fluoridated

After ten years of planning and action by health professionals and other interested citizens, nearly two million people began drinking fluoride-adjusted water supplies on March 9 in the 32 cities and towns of the greater Boston area.

"Today our children . . . will have a fighting chance for better health, lower bills and less pain and suffering because fluoridation has been implemented," said Dr. Myron Allukian, assistant deputy commissioner, Boston Department of Health and Hospitals.

A Joint Committee for Regional Fluoridation was set up in 1970 to implement the plan consisting of representatives of the Massachusetts Dental Society, Boston Department of Health and Hospitals, Boston Legal Department, Massachusetts Citizens' Committee for Dental Health, Massachusetts Department of Public Health, Massachusetts Medical Society, and Region I of the US Public Health Service.

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Thora Appelt

CDA STAFF

Thora Appelt joined the staff of the Canadian Dental Association in March 1977 as Secretary to the Council on Education and the Council on Hospital Services. In this position, one of her prime responsibilities is the accreditation programs of both of these CDA Councils.

Mrs. Appelt was born in Hertfordshire, England, and came to Canada in 1946. She lived and worked in a number of Canadian cities before settling in Ottawa — 11 years in Edmonton where she was employed by the University of Alberta, eight years in Vancouver, and three years in Toronto.

DALHOUSIE TO PRESENT TWO COURSES

Dalhousie University will offer two courses, "Patient Evaluation — before, during and after Treatment" and "The Metal Ceramic Restoration: Fun or Frustration" as its major fall continuing education event on September 29 and 30, 1978, in Halifax. Featured this year will be Dr. Esther Wilkins, Clinical Assistant Professor, Tufts University School of Dental Medicine, and Dr. Jack Preston, Director, Fixed Prosthodontics Resident Training Program, Wadsworth Veterans Affairs Hospital Center; Lecturer, University of California at Los Angeles. Both of these people are leading clinicians in their fields. Registrants in the dental hygiene course will have the opportunity to attend parts of the presentation by Dr. Preston.

Dr. Wilkins received a Dental Hygiene certificate from Forsyth School for Dental Hygienists, a D.M.D. and a certificate in Periodontology from Tufts University and has taken courses in Education. She has had considerable experience as a dental hygienist, dental practitioner clinical researcher, and lecturer in various educational settings. Dr. Wilkins has conducted research in several aspects of preventive dentistry, periodontics and education. Among her published work is the text, *Clinical Practice of the Dental Hygienist*. In this continuing education course Dr. Wilkins will center her discussion around patient evaluation and will include examination, probing, mobility, furcation examination, mucogingival involvement and evaluation of soft tissue and tooth surface after therapy. She will introduce material from recent research reports on root surface and discuss evaluation for polishing.

Dr. Preston graduated from the College of Dentistry, University of Southern California and completed a residency in fixed prosthodontics at Fitzsimons General Hospital. Among his many professional memberships he is a charter member of the American College of Prosthodontics and of the American Academy of Esthetic Dentistry. In this two day course he will give an overview of some current concepts in fixed prosthodontics for the general practitioner. He will discuss the development of aesthetics and function through the use of metal ceramic restorations. His presentation will deal with controlled tooth reduction, aesthetic planning, laboratory communication and some of the factors dictated by the materials employed. Considerable time will be spent on color and shade control as well as chairside modification of the completed restoration.

This continuing education event occurs during Halifax's annual celebration, The Joseph Howe Festival. These courses are open to dentists, dental assistants, dental hygienists and dental technicians. For further information contact: Dr. D. V. Chaytor, Continuing Education in Dentistry, Dalhousie University, Halifax, N.S. Tel. (902) 424-2277.

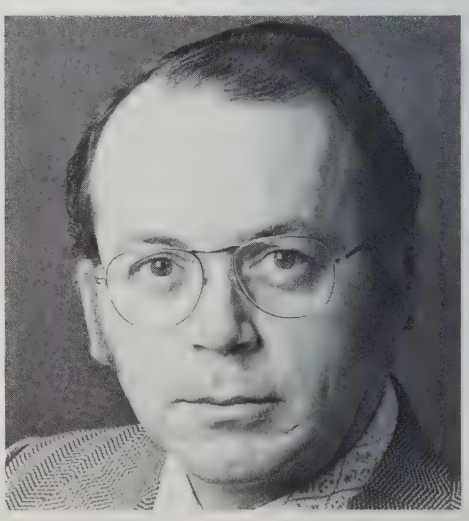
Don't wait. Register now

The Canadian Dental Association's National Convention will be held in Winnipeg, September 10-13, 1978. Early preregistration is strongly recommended. For your convenience a registration and hotel reservation form is included at the back of this issue. Fill it out and return it, with your cheque, today.

President of American Cleft Palate Association

Dr. R. Bruce Ross, Chief of Dentistry at Toronto's Hospital for Sick Children, was elected President of the American Cleft Palate Association during its 35th Annual Meeting held in Atlanta, Georgia, April 5-8, 1978.

Dr. Ross is the first Canadian to hold the office of president of this large multi-disciplined organization whose membership is comprised of many specialists in medicine, dentistry and allied professions.



Dr. R. B. Ross

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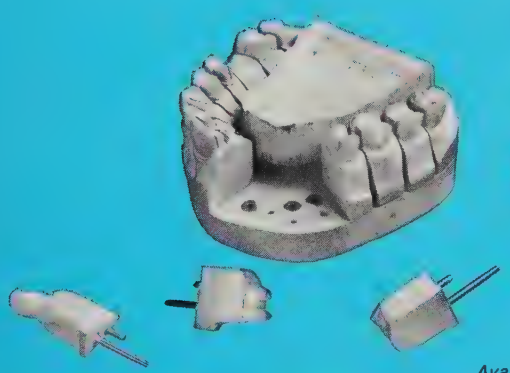

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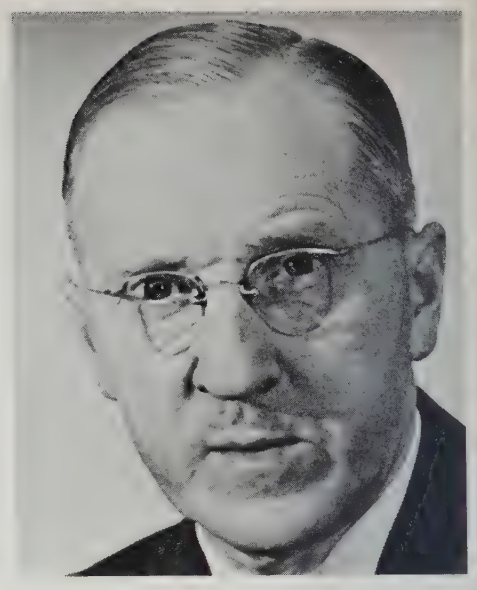

"Dr. Lorne E. MacLachlan of Ottawa has recently presented two cheques to the Canadian Fund for Dental Education totalling $55,000, thereby increasing his Endowment Fund to an even $100,000," according to J. W. Neilson, CFDE's Board Chairman.

"Nearly five years ago, in August 1973, Dr. MacLachlan established his CFDE Endowment Fund with a handsome personal gift of $45,000 and directed that the annual income be shared equally by the dental schools at Toronto, McGill and Dalhousie Universities."

"Dr. MacLachlan has now decided that, starting in 1978, the University of Western Ontario's name should be added to the list of schools now benefitting from his Endowment. The additional income generated by his latest gift will take care of the fourth school and also increase the shares of the schools already participating."

"As a young man Dr. MacLachlan enrolled in major post-graduate programs in both Oral Surgery and Prosthodontics. The latter discipline eventually was to be his love and he became renowned for his work therein."

"Naturally then, Dr. MacLachlan directs that income from his Endowment be used to provide financial assistance for teacher training in Clinical Prosthodontics, Complete and Maxillo-Facial Prostheses at the four dental schools."

"Last February the Endowment income was pooled to finance the first Lorne E. MacLachlan Prosthodontics Teaching Conference at Dalhousie University. The two-day meeting was attended by department heads and teachers from each of Canada's ten dental faculties and undoubtedly will lead to improved Prosthodontic teaching techniques in the nation's schools."

"Dr. MacLachlan is an exceptionally generous and foresighted gentleman who spent most of his eighty-three years in dedicated service to the public and his profession. We of the Fund are proud and honoured to be entrusted with the administration of his $100,000 Endowment Fund that will benefit Canadian dentistry in perpetuity," said Dr. Neilson.

CANADIAN FORCES DENTAL SERVICE SCHOOL LIBRARY DEDICATED

On March 2, 1978, the Library of the Canadian Forces Dental Service School was dedicated to the memory of the late Brigadier-General Lawrence Glenn Craigie, CD, QHDS, DDS, FICD. General Craigie, at the time of his death in 1976, was Director General of Dental Services.

Brigadier-General C. E. Beattie, Base Commander CFB Borden, welcomed 125 guests to the ceremony. A bronze cast plaque was presented by Brigadier-General W. R. Thompson, Director General Dental Services, and unveiled by Mrs. L. G. Craigie. Colonel J. N. Wright, Commandant Canadian Forces Dental Service School, accepted the commemorative plaque and announced that henceforth the library shall be known as The L. G. Craigie Memorial Library. General Thompson presented the dedication address and the plaque on behalf of all members of the Canadian Forces Dental Services.

Brigadier-General Craigie's contributions to the Canadian Armed Forces, its dental services, and the dental profession in general, were many. He served his country and the Canadian Military faithfully for 35 years. In 1968, he was appointed Commandant, Canadian Forces Dental Service School and served in Borden until 1973, when he was posted to National Defence Headquarters, promoted to Brigadier-General, and appointed Director General of Dental Services. General Craigie served in this capacity until his untimely death on 29 July 1976.

General Craigie was extensively involved with organized dentistry and dental education. He had served on the Board of Governors of the Canadian Dental Association and was the Canadian Forces Dental Services delegate to the Fédération Dentaire Internationale. During his tenure as Commandant of CFDSS he maintained a close liaison with the Ontario Dental Association, the Royal College of Dental Surgeons of Ontario, Toronto, and other district academies of dentistry and the Council on Education of the Canadian Dental Association.

General Craigie received the CF Decoration in 1957, and was made a Fellow of the International College of Dentists in 1969. He held the appointment of Honorary Dental Surgeon to Her Majesty Queen Elizabeth II, and in 1975 was invested as a Brother in the Order of St. John. In addition, General Craigie organized and implemented a retraining program for immigrant Czechoslovakian dentists on behalf of the Royal College of Dental Surgeons of Ontario in 1969.

Some of the distinguished visitors to CFB Borden who participated in the dedication ceremonies included: Mrs. L. G. Craigie, her daughter Jill and two sons Laurie and David; two former Directors General of Dental Services, Brigadier-Generals B. P. Kearney and G. C. Evans; Dr. D. Rife, President of the Canadian Dental Association; Dr. and Mrs. Sonley, President of the Royal College of Dental Surgeons (Ontario); Dr. K. Pownall, Registrar, Royal College of Dental Surgeons (Ontario); Dr. Jack Harris, President, Ontario Dental Association; Dr. D. Evans, Immediate Past President, Ontario Dental Association; Dr. Marjorie Jackson, representing the Dean, Faculty of Dentistry, University of Toronto; Mr. C. Hunt, President of the Royal Canadian Dental Corps Association; Col. (ret'd) and Mrs. C. Cornish; Col (ret'd) and Mrs. J. C. Brick; and LCol (ret'd) and Mrs. A. G. Andrews, Associate Professor of Oral Surgery, University of Toronto.

General Craigie will always be remembered for his dedication to his family, the dental profession, and to the Canadian Forces.

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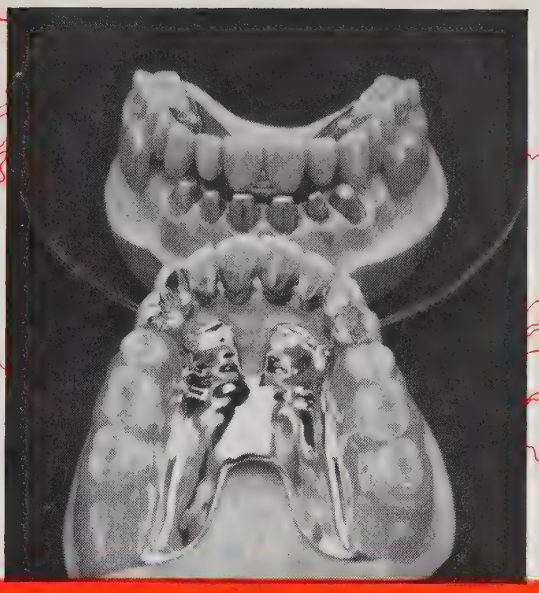

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In memoriam

Dr. Percival Gordon Anderson 1901–1977

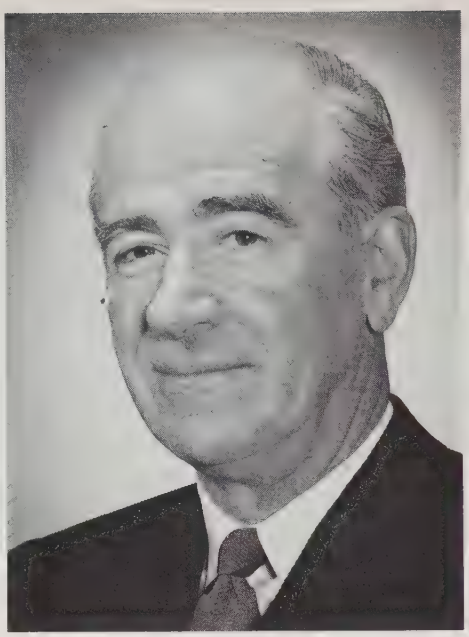
"P.G.", as we all lovingly referred to him, was so inspiring in his ambitions toward the finest possible service by the dental profession that the Andy Anderson Study Club, established in his honour in 1936, has continued to meet regularly in Toronto for more than 40 years. P. G. Anderson's powerful influence on his colleagues in Canada and the United States, and on his students, was achieved not by cant and force of argument, but by that powerful unobtrusive method — inspiring example. So highly did we all respect him that we hoped to emulate his high standards.

His career as a dentist had an auspicious debut. When he was a final year student in the Faculty of Dentistry, University of Toronto, in 1927, the head of the clinical department reported: "P. G. Anderson — This is an A1 student, Clinical 100%. Splendid — the best."

The finesse in manipulative skills for which he was famous began to develop at an early age. By age 14 he had constructed a clock of classic design. At an even earlier age he made an operating steam engine, in which he developed a very powerful steam pressure to impress his father. It did — it exploded! That probably influenced his father to veto the making of a glider in which young Percy proposed to jump off the roof of the barn.

Nevertheless his interest in, and his concepts of, construction continued to refine to the extent that, after his marriage to Margaret Dow, he made furniture of exquisite design and craftsmanship. The gavel presented to the Canadian Dental Association designed and built by "P.G." was crafted with the representative woods of the ten provinces, and will always sustain his memory in the hearts and minds of the profession.

Dr. P. G. Anderson was born in Port Elgin, New Brunswick, in 1901. There he attended public and high schools. After Normal School in Fredericton, New Brunswick and then Mount Allison University in Nova Scotia, he entered the course in Dentistry at the University of Toronto. He graduated with honours in 1927 at the head of his class.



Dr. P. G. Anderson

It was to be expected that a man of P.G.'s superior character and abilities would be invited to assume major positions as a teacher in the Faculty of Dentistry, University of Toronto. During the period 1947 to 1957, he was Professor of Operative Dentistry in that Faculty; from 1957 to 1970, he was Director of Clinics. Then, just before his retirement in 1970, he was the Acting Dean.

P.G. was convinced of the need of a strong Canadian Dental Association. He served that organization in many capacities and it gained strength from his influence. In 1954 he was elected President of the Canadian Dental Association. In that role he gave without stint of his abundant resources.

The dental profession of the United States also received a generous portion of Dr. Anderson's ideals and abilities. He was one of only three Canadians elected President of the prestigious American College of Dentists, receiving that honor in 1966.

In addition to positions of prominence arising from appointment or election, P. G. was the recipient of no less than six honorary fellowships.

Perhaps his most famous contributions throughout his life were his humor, his ready smile, his obvious concern for people, the enthusiasm with which he approached any task, his total professional concern for his patients, and his alert introspective mind which never failed to come to the crux of any problem. All of these were tempered by a gentlemanly demeanor, with the true spirit of giving.

To his wife Margaret and son Jim, who has followed in his father's footsteps, we share their great loss and realize so well their contributions in providing the continuing base of stability so necessary to a great man.

P. G. leaves us sad that he is gone, but proud and grateful that we knew him. We give thanks for the degree to which he elevated our profession and for our improved abilities to serve the public.

Dr. Chas. H. M. Williams,
Dr. James D. Purves,
Toronto, Ontario

Deaths

Dussault, J. A., 75. Longueuil, Quebec. University of Montreal, 1923. 30-3-78.

Murphy, Edgar Morrison, 71. Cobden, Ontario. University of Toronto, 1931. 11-3-78.

Noel, Marcel, 60. Quebec City, Quebec. University of Montreal, 1945. 29-3-78.

Osterhout, W. L. L., 81, Vancouver, British Columbia. University of Oregon, 1925. 23-2-78.

Solomon, Myer, 79. Westmount, Quebec. McGill University, 1918. 15-2-78.

Pre-Convention PRIZE DRAW

Delegates to the CDA Convention who register before August 10, 1978, will be eligible for the special prize draw for a free trip to the FDI Congress in Madrid, Spain, September 25-29, 1978. The winner will receive free air fare for two plus deluxe accommodation. Registration forms are included in the back of this issue.

CDA IS ALIVE AND WELL AND LIVING IN OTTAWA

The following is an address presented by Dr. D. L. Rife, President of the Canadian Dental Association, to the Manitoba Dental Association's Annual Meeting held in Winnipeg earlier this year.

In 1974 a "Summary Report" on the results of the Task Force on Canadian Dentistry was issued by a public relations firm hired by the Canadian Dental Association. Among the statements contained in this summary report are the following:

"The Canadian dental profession is suffering from disunity and division, nationally."

"Many dentists hold the view that the organization is dictatorial."

"A minority of CDA membership were highly critical of the Association."

"CDA doesn't give the impression of being a strong group, but it ought to be."

In 1976, in a letter to all the provincial dental associations, one provincial association stated: "The Canadian Dental Association is dying. Do we even care? The CDA is very close to death and no one is coming forth with a positive action to save it. The Ottawa building is not the only reason the CDA is in trouble, somewhere CDA has managed to get its needs and priorities confused."

However, again in 1976 in a provincial newsletter, one author began to see the light of what was occurring at CDA. He stated: "If one were to superficially assess the recent Board of Governors meeting in Edmonton, it might be summed up as being uneventful and consisting mainly of housekeeping duties. However, many significant matters were consummated dealing with Constitution and By-laws."

Why have I been quoting this material to you? Does it really matter? Does it matter to you personally whether there is a Canadian Dental Association? Does it matter to you if a person is trained in one part of Canada, or in some other country, equal to the standards of your province? Do you care about your insurance — life, office overhead, sickness and accident, malpractice? What about your retirement savings plan, investment plans and support for dental education? How about your concern for dental students — those who will be running your association in the future? Are any of these concerns examples of what the statement "the organization is dictatorial" means to you? Are these examples of what the statement "the organization doesn't appear to be a strong one" means?

Let's put some facts on the line at the start, in order to understand what your dental organizations are all about. The Manitoba Dental Association is the major dental group in this province. It does and says what you want it to. It is your action group, public relations group and negotiator with the provincial government. In addition, it is a corporate member of the Canadian Dental Association.

There are 11 corporate members of the CDA, each of which elects a certain number of representatives to the Board of Governors, according to its size. The Board of Governors of CDA therefore acts in the best interests of all the Provinces by debating and examining issues and offering resolutions and guidelines.

To this point everything is straightforward, but there may not be general understanding of what happens to these guidelines and resolutions from CDA.

CDA by its Constitution is *not* an authoritative organization and therefore *cannot* force any Province or any group of dentists to adhere to its dictums. Thus, CDA cannot ever be dictatorial and must by its very nature, act by the advice and consent of all the provincial dental associations.

This basic understanding of the concepts of CDA places the whole picture of those statements I quoted earlier clearly in focus. CDA is not dead or dying. CDA is not dictatorial nor, conversely, is it impotent. CDA and Canadian dentistry is *not* disunited or divided and CDA *does* have its purposes and priorities straight.

In fact CDA is alive and well and living in Ottawa. Let me tell you about it. During the past three years we have had a lot of tough, challenging things to do. There was a new building to construct and staff and an old building to sell. There was an FDI Convention to put on and finance, there was a new Constitution to write and implement, and a whole new set of priorities to evaluate and set up. Then there was paying for it all. Part of the paying was to negotiate a loan with the Canadian Fund for Dental Education Capital Fund for $300,000.00 at 12 per cent interest. This second mortgage provided interim financing and cash flow both for the building and for the immediate financial underwriting of the CDA/FDI Convention. Meanwhile, the old CDA building was sold and the CDA/FDI Convention was a financial success. As a result CDA has retired, as of the end of December 1977, the second mortgage with CFDE leaving the present mortgage of $489,400.00 at one-half per cent under prime lending rate (i.e. presently 9¾ per cent) as the only financial encumbrance on the Ottawa building.

CDA has also instituted a review of practice norms, standards and ethics;

- your insurance programs were reviewed and re-tendered;

- the university, community college and hospital accreditation program was revamped;
- the malpractice insurance was re-organized;
- new retirement savings opportunities were developed;
- dental health week was completely overhauled;
- investigation of the taxation problems facing dentists was undertaken;
- all CDA pamphlets, brochures and films were reviewed and recreated;
- student involvement with the profession was re-organized;
- in fact, every activity of CDA was reviewed and in the concept of zero-based budgeting, was either scrapped or revitalized.

So much for the past and present. What then should we be concerned about in the future? To be quite frank, some things that are going on these days scare hell out of me because I don't think that the people who are proposing them understand either what they are proposing or the ramifications of their actions.

We are in very precarious times. There are any number of groups, having greater or lesser substance to their claims, who have proclaimed themselves in opposition to the present state of our professional activities and are doing their utmost to bring about changes.

- There are sections of government, both federal and provincial, that have set about to establish standards of practice to which you will be expected to subscribe.
- There are special interest groups, some of whom you have had dealings with in the past, who are endeavouring to make incursions into your practice, with obvious self-interest and little regard for professional competence.
- There are any number of people both in our country and other lands who put political expediency above concern for the well-being of people, and advance all sorts of schemes for dental care, with small regard for effectiveness or cost or preventive dentistry.

I get scared as well by the fact that I suspect there are only a corporals' guard of dentists around who know about, or even care about, what is potentially ahead for this profession. I devoted a fair amount of time and effort in my acceptance address for the presidency of CDA (published in the December issue of the CDA Journal) to discussing our professionalism.

Three of the basic tenets of professionalism deal with the ability of the profession to train, licence and supervise its own members; to develop a culture devoid of being a means to an end but rather a career system of values; and a monopoly over ethical codes, and client to professional, and colleague to colleague privileges and powers.

In these three areas alone there are any number of members of our associations who would willingly trade some or all of them for an assured income from a government or insurance company, who would trade their freedom to practise as they have been trained and have learned, for a set of regulations and even lay person supervision.

Let me cite the following:

Fact: In the United States, there is a call for salaried dentists to provide basic health services for all citizens.

Fact: The government of Quebec has stated that all medical and dental practitioners will be salaried by 1980.

Fact: Large numbers of companies, in areas where it is legally possible, are establishing closed panel dental clinics. The labourers' union is endeavouring to establish one of these in Toronto.

Fact: In 1976, 42 per cent of U.S. health care costs were paid by government, a total of 139.3 billion dollars.

Fact: By 1978 this will rise to $180 billion and by then 56 per cent will be paid by government.

Fact: The cost of running health plans is almost equal to the amount spent on health, by the plans.

Fact: It matters not who administers health plans (i.e. government or private industry); the administrative costs are about equal.

Final Fact: With all this money spent on plans, hospitals, physicians, dentists, health personnel and administrators, the expenditure has not purchased *any* improvement in either the *quality* or *longevity of life*.

In the face of such things as I have drawn to your attention, we have three choices:

1. We can stand firm, our eyes fixed firmly on yesterday, and be overwhelmed.
2. We can stand firm, concede the inevitability of it all, and learn to survive as we are immersed by it all.
3. We can stand firm, but define the principles which are important to us, then demand and accept the responsibility for initiating action to achieve them in a new environment.

There must be recognition for government involvement, consumer interests and professional responsibilities. If all three are given proper credence, our profession will have achieved its leadership role in preventive dentistry and performance of dental services.

This, then, is in essence what the Canadian Dental Association is all about — putting into action those things which are in the common interest of the public and the profession and, in turn, acting to protect the interests of the profession.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on April 30, 1978:

Common Stock Fund	$30.399
Fixed Income Fund	$20.847
Guaranteed Fund	$14.555
Balanced Fund	$10.150

Total assets (market value) of the plan were $29,421,204.05.

The previous month's figures, as of March 31, 1978, stood as follows:

Common Stock Fund	$29.626
Fixed Income Fund	$20.744
Guaranteed Fund	$14.471
Balanced Fund	$10.069

Total assets (market value) of the plan were $29,214,098.39.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

He'll be right up to date... ...for about six months.

This is today's graduate. He has learned, and learned well, the most up-to-date technology and techniques in the dental profession. He has been taught by some of the finest dental professors in the world. He is highly trained, skilled and ready to begin.

And yet, six months from now, next years graduating class will be talking about still another new product or a new method. A new hand held instrument, a new cutting bur, a breakthrough in anaesthesiology, or a different alloy or mixing compound will be introduced. And how this years graduate finds out about next years products has a lot to do with the people at Ash Temple.

At Ash Temple, we believe our sales representatives have a very real job of representing not just Ash Temple, but all the research and development people in the dental business. This means your Ash Temple rep knows about new products and methods as soon as they become available. His job, you see, is not just to provide you with all of the products your practice needs today, but also to keep you informed of the products you'll need tomorrow.

Talk to him.

Ash Temple LIMITED
We keep learning too.

WINNIPEG, HOTESSE DU CONGRES NATIONAL DE L'ADC

Le Congrès national 1978 de l'Association dentaire canadienne aura lieu à Winnipeg, Manitoba, du 10 au 13 septembre.

Au programme scientifique des conférences et des cliniques, figure un groupe impressionnant de conférenciers de réputation internationale, représentant toute la gamme des spécialités dentaires. Entre autres, voici quelques-uns des conférenciers qui traiteront des thèmes suivants:

Endodontie

Au cours de leur présentation conjointe, les Drs Marshall D. Peikoff et William H. Christie parleront du traitement de lésions traumatiques chez les jeunes patients.

Le Dr Peikoff, professeur adjoint et chef de la section Endodontie de la Faculté de médecine dentaire de l'Université du Manitoba est l'auteur de plusieurs publications et il a participé à la présentation de nombreuses conférences et cliniques au Canada et aux États-Unis. Diplômé — avec distinction — de l'Université du Manitoba, le Dr Peikoff a obtenu sa maîtrise à l'Université de Boston et il se spécialise dans l'exercice de l'endodontie à Winnipeg depuis une dizaine d'années. Il est l'un des examinateurs du Conseil national des examinateurs dentaires, membre (Fellow) du Collège royal des dentistes et ''Diplomate'' de l'American Board of Endodontics.

Le Dr Christie exerce avec le Dr Peikoff et il est également associé à la Faculté dentaire de l'Université du Manitoba. Diplômé de l'Université du Manitoba, il a obtenu sa maîtrise en médecine dentaire à l'Ohio State University, où il était adjoint d'enseignement pendant deux ans. Conférencier de renommée internationale, le Dr Christie a servi à titre d'éditeur du Bulletin de l'Association dentaire du Manitoba et il a écrit de nombreux articles qui ont paru dans diverses publications dentaires. Il est membre de l'Académie canadienne d'endodontie et de l''''American Association of Endodontists.''

Pédodontie

Le Dr Walter A. Doyle présentera une séance que les délégués qui s'intéressent aux procédures restauratrices pédodontiques avancées ne voudront pas manquer. Auteur de nombreux articles qui paraissent actuellement dans des publications et des manuels de médecine dentaire, le Dr Doyle a prononcé plus de 300 conférences aux États-Unis, en Finlande, en Grèce et en Irlande. Diplômé de l'École de médecine dentaire de l' ''Emory University'' en Georgie, il a obtenu sa maîtrise en pédodontie à l' ''Indiana University'' et sa maîtrise en orthodontie à l'école de médecine dentaire de la ''Boston University''. Tout en exerçant à plein temps sa spécialité à Lexington, Kentucky depuis une quinzaine d'années, il a également fait une impressionnante carrière à titre d'enseignant aux ''Indiana'', ''Kentucky'', ''Boston'' et ''Northwestern Universities.'' Dr Doyle est actuellement président de l' ''American society of dentistry for children'', member (Fellow) du Collège international des dentistes et il a tenu des postes supérieurs au sein des associations dentaires régionales et nationales.

Gestion de cabinets

Les Dr Richard Klein et Ralph O'Connor sont les experts reconnus dans le domaine de la gestion de cabinets dentaires et ils présenteront une communication détaillée sur ce thème lors du programme scientifique du Congrès.

Ils sont tous deux membres de la Faculté clinique de l'École de médecine dentaire de la ''Washington University'' et ils ont obtenu leur expérience lors des diverses étapes de leur carrière: associé junior, solo, associé senior, ainsi que le groupe composé de cinq dentistes au sein duquel ils exercent aujourd'hui.

Les Drs Klein et O'Connor ont présenté leur communication à la Washington University pendant 15 années consécutives, la remettant continuellement à jour; ils continuent à attirer une foule d'auditeurs. Un grand nombre de dentistes, ainsi que leur personnel, suivent le cours plusieurs fois afin de se mettre au courant des derniers progrès et de mettre en opération dans leur propre cabinet toutes les nouvelles idées.

Orthodontie

Le Dr Rowland D. Haryett présentera cette année la conférence Grieve Memorial, intitulée ''Interception du chevauchement dans les segments antérieurs au début de la dentition mixte''.

Le Dr Haryett a obtenu sa maîtrise en médecine dentaire à l'Université de Toronto et, peu de temps après, il devenait membre (Fellow) du Collège royal des dentistes. Il est devenu membre de la Faculté de médecine dentaire de l'Université d'Alberta et, durant son séjour, il est devenu chef du département d'orthodontie où il a organisé en 1970, un programme post-universitaire en orthodontie. En 1976, il a servi à titre de président du Collège international des dentistes.

Nous vous avons donné ci-dessus quelques-uns des conférenciers et les thèmes dont ils traiteront lors du Congrès. De nombreux autres participants figureront aux prochains numéros du Journal.

Bien entendu, le programme scientifique sera accompagné d'un stimulant programme mondain et d'un programme pour les dames.

Le comité du Congrès, sous la présidence du Dr Ralph Crawford, investit depuis de nombreux mois tous ses efforts dans le succès total du Congrès lequel, on l'espère, sera l'un des plus réussi qui n'ait jamais eu lieu. Ne le manquez surtout pas!

LE FONDS DE DOTATION DU DR. LORNE E. MACLACHLAN ATTEINT $100,000

Selon le Dr J. W. Neilson, Président du Conseil du FCED, "le Dr Lorne E. MacLachlan d'Ottawa a dernièrement présenté deux chèques totalisant $55,000 au Fonds Canadien pour l'enseignement dentaire; son fonds de dotation atteint maintenant la somme ronde de $100,000."

"Il y a près de cinq ans, en août 1973, le Dr MacLachlan a créé un fonds de dotation FCED grâce à un généreux don personnel s'élevant à $45,000 il a recommandé que le revenue annuel de cette somme soit divisé également entre les facultés dentaires des universités de Toronto, McGill et Dalhousie."

"Le Dr MacLachlan maintenant décidé qu'à partir de 1978 le nom de l'University of Western Ontario figurerait également à la liste des écoles bénéficiant de son fonds de dotation; le revenu supplémentaire engendré par son dernier don suffira non seulement aux besoins de cette quatrième faculté mais il amplifiera également la part des écoles qui participaient auparavant."

"Lorsqu'il était jeune diplômé, le Dr MacLachlan s'est inscrit à deux programmes post-universitaires d'envergure: chirurgie buccale et prosthodontie. C'est cette dernière spécialité qui devint finalement sa favorite et sa réputation repose sur ses travaux dans ce domaine."

"Voilà pourquoi le Dr MacLachlan a recommandé que les revenus provenant de son fonds de dotation soient destinés à fournir une assistance financière à la formation d'enseignants dans le domaine de la prosthodontie clinique, prothèse complète et maxillo-faciale, aux quatre écoles dentaires."

"En février dernier, le revenu du fonds a été employé pour financer la première Conférence d'enseignement prosthodontique Lorne E. MacLachlan à l'université Dalhousie. Cette assemblée de deux jours réunissait les chefs de département et les enseignants des dix facultés dentaires du Canada et mènera sans doute au perfectionnement des techniques d'enseignement prosthodontique dans les écoles du Canada."

"Le Dr MacLachlan est une personne exceptionnellement généreuse et prévoyante, qui a consacré la plus grande partie de ses quatre-vingt trois ans au service du public et de la profession. Le personnel du Fonds est fier et honoré d'avoir en charge la gestion de ce fonds de dotation de $100,000, car la profession dentaire canadienne en bénéficiera à perpétuité", a ajouté le Dr Neilson.

Dr J. V. Legault

Fédération des dentistes spécialistes du Québec

Le docteur J. Victor Legault a récemment été élu président de la Fédération des dentistes spécialistes du Québec. Il succède au docteur Gérard de Montigny qui occupa ce poste pendant cinq ans.

Diplômé de l'Université de Montréal (D.D.S. 1961) et de l'Université de Rochester N.Y. (certificat pédodontie 1965), le docteur Legault exerce sa spécialité à Montréal depuis 1965. Ses nombreuses activités professionnelles l'ont fait connaître avantageusement dans le monde dentaire.

Parmi les dirigeants de la F.D.S.Q., l'on compte les docteurs R. G. Jones, vice-président; Jacques Fiset, secrétaire et Jean Turgeon, trésorier.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 avril, 1978:

Fonds d'actions ordinaires	$30,399
Fonds à revenu fixe	$20.847
Fonds garanti	$14.555
Fonds de placement équilibré	$10.150

L'avoir total (valeur marchande) du régime s'élevait à $29,421,204.05.

Au 31 mars, 1978, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$29.626
Fonds à revenu fixe	$20.744
Fonds garanti	$14.471
Fonds de placement équilibré	$10.069

L'avoir total (valeur marchande) du régime s'élevait à $29,214,098.39.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

Inscrivez-vous dès maintenant

Le Congrès national de l'Association dentaire canadienne aura lieu à Winnipeg, du 10 au 13 septembre 1978. Nous suggérons fortement que vous vous incriviez à l'avance. Afin de vous faciliter les choses, il y a, à l'arrière de ce numéro, une formule d'inscription et de réservation d'hôtel. Remplissez-la et renvoyez-nous la accompagnée de votre chèque, dès aujourd'hui.

TEMPORARY FIXED PROSTHESES: RECORDING AND FINISHING THE MARGINS

M. I. MacEntee, LDS, RCSI
Vancouver

This article describes a technique to improve the marginal adaptation and contour of a temporary fixed prosthesis.

Preventive dentistry trends have re-emphasized the need for a temporary fixed prosthesis which will be acceptable to the gingival and tooth tissues. The methods currently used to fabricate such a prosthesis have been summarized by Talkov[1] and elaborated upon subsequently by other authors.[2-5] However, an acceptable contour and marginal fit is not always easily attainable using these techniques, because the acrylic resin used to form the basic bulk and shape of the restoration may fail to adapt closely to the margins on the prepared teeth. This shell then requires a relining with more acrylic resin. Frequently the relining resin unites poorly to the bulk resin, and problems arise when the gingival third is being contoured and the relining resin flakes off, creating a marginal deficiency (Fig. 1). The following procedure attempts to prevent this problem.

The Technique

Recording the margins — After Obtaining an acrylic resin shell with acceptable contours and opposing occlusal contacts, a thick mix of autopolymerizing acrylic resin is obtained and sparingly placed inside the shell. When the resin has entered the third or doughy stage of polymerization in approximately 1½ minutes (Fig. 2), the shell is seated onto the tooth. At this doughy stage the resin has a consistency capable of gently displacing the gingiva and saliva and acts like an impression material in closely adapting to the tooth margins. The patient is asked to close tightly and then open. The prosthesis is removed and replaced continually until polymerization is complete. Upon final removal from the tooth, all margins, marginal ridges and contact points should be identified, and delineated with a lead pencil (Fig. 3). Before proceeding further, only the grossly excess resin is removed.

Finishing the margins — The union of the old and new acrylic resin is now reinforced. A trough is cut around the prosthesis to a depth approximating the radius of a No. 8 round bur (Fig. 4a and b) close to the margin where the relining acrylic resin overlaps the original resin. A thin fluid mix of autopolymerizing resin is obtained and immediately flowed into the trough (Fig. 5). The prosthesis is then placed into a bowl of hot water, where the additional resin polymerizes very rapidly. If this polymerization can occur in a pressure cooker at 20 p.s.i. pressure, a more dense acrylic resin will be obtained. After drying and again delineating the margins and contact points if necessary, the desired contouring and marginal finishing can be safely performed with an acrylic cutting or diamond bur. Finally, a smooth polish is achieved with a soft brush, pumice and a polishing agent before the restoration is luted in place.

Conclusion

The correct manipulation of autopolymerization acrylic resin in a template provides a rapid method of fabricating a temporary prosthesis. To compensate for polymerization shrinkage and/or poor marginal adaptation, the primary mix of resin frequently requires relining with a secondary mix to obtain a biologically acceptable margin.

Contouring the gingival third and finishing the margins of the prosthesis is helped if a third mix of rapidly polymerized resin is added at the junction of the primary and secondary resin mixes, thus reinforcing their chemical union and preventing flaking. This technique adds little extra chair-side time to the usual procedures advocated for obtaining a well-fitting temporary prosthesis.

Dr. MacEntee is assistant professor in the Department of Restorative Dentistry, Faculty of Dentistry, University of British Columbia, Vancouver, B.C.

1 Talkov, L. Temporary acrylic fixed bridgework and splints. J Prosth. Dent 2:693, 1952.
2 Sotera, A. J. A direct technique for fabricating acrylic resin temporary crowns using omnivac. J Prosth. Dent 29:577, 1973.
3 Fritts, K. W. and Thayer, K. E. Fabrication of temporary crowns and fixed partial dentures. J Prosth. Dent 30:151, 1973.
4 King, C. J., Young, F. A. and Cleveland, J. L. Polycarbonate resin and its use in the matrix technique for temporary coverage. J Prosth. Dent 30:789, 1973.
5 Josephson, B. A. A technique for temporary acrylic resin coverage in functional occlusal relationships. J Prosth. Dent 32:329, 1974.

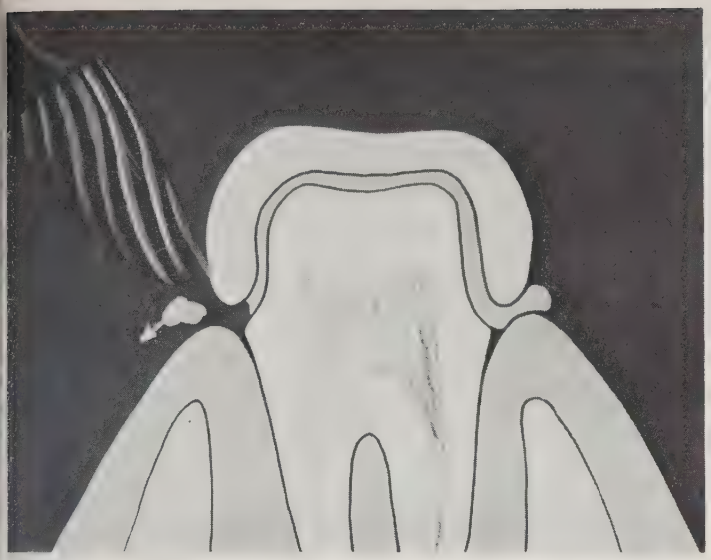


Fig 1 Flaking of acrylic resin during contouring of margins.

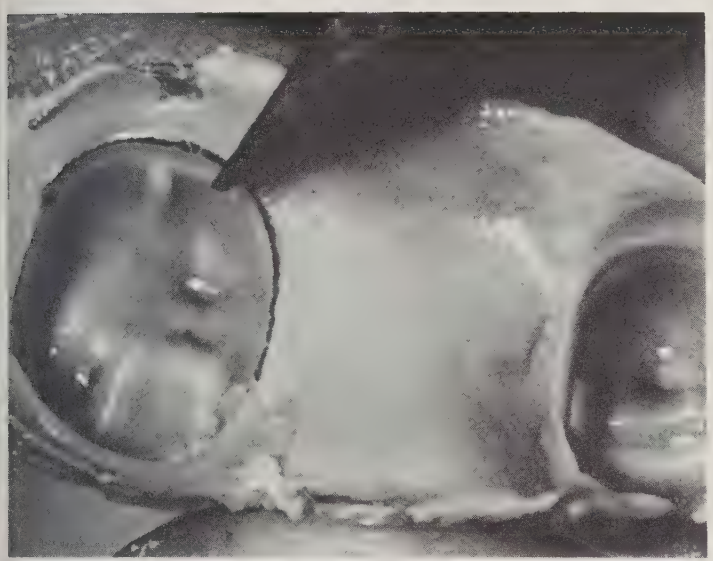


Fig 3 Outlining margins with lead pencil.

Fig 5 Additional autopolymerizing resin is flowed into the trough.

FLUID STAGE

TACKY STAGE

DOUGH STAGE

RUBBER STAGE

Fig 2 Stages of polymerization.

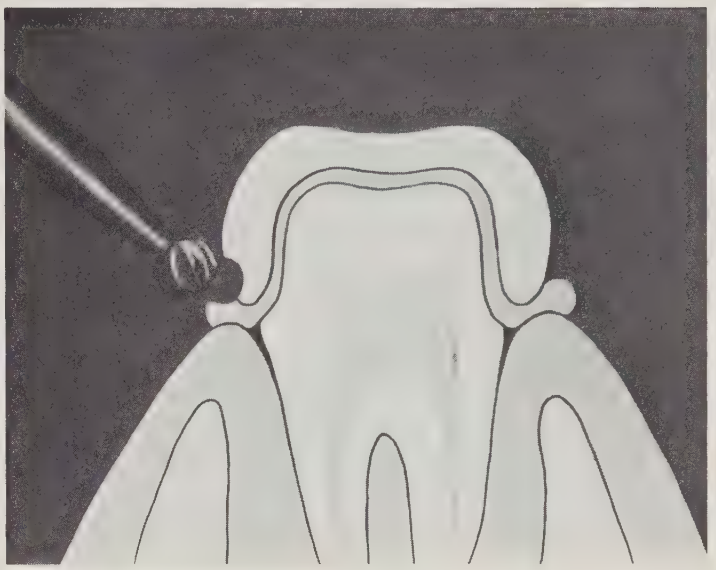


Fig 4a

Fig 4a and b A trough is cut with a No. 8 round bur.

Fig 4b

STUDIES OF PERMANENT TOOTH ANOMALIES IN 7,886 CANADIAN INDIVIDUALS

I: IMPACTED TEETH

Ravindra M. Shah, BDS, MS, PhD
Marcia A. Boyd, DDS, MA
Thea F. Vakil
Vancouver

In the following two-part article, full-mouth radiographs of 7,886 patients were examined for the incidence of impacted, congenitally missing, supernumerary and peg teeth. The data are statistically analyzed and compared to previously reported studies.

Studies of the prevalence of human permanent tooth anomalies are important because they measure the distribution of conditions and factors which affect or modify that distribution in and amongst groups.[1,2] Furthermore, abnormalities in tooth number and size, as well as impactions, introduce an imbalance in maxillary and mandibular arch length and occlusion[3,4] which subsequently can have profound implications for treatment planning.[5]

Several studies have been reported in the world literature on impacted, congenitally missing, supernumerary and peg teeth from various perspectives including etiology, location, racial and sex differences in incidence, pattern and mode of inheritance. To our knowledge, no study of impacted teeth has been conducted on the Canadian population. For congenitally missing, supernumerary and peg teeth, only two studies have been reported on the Canadian population.[6,7] In the present study, we have analyzed the overall incidence of permanent tooth anomalies and impacted teeth in individuals who were examined at the Faculty of Dentistry, University of British Columbia. A survey of other permanent tooth anomalies will be presented in a subsequent report.

Materials and methods

Full-mouth radiographs of 7,886 patients were examined for impacted, congenitally missing, supernumerary and peg teeth. All cases were recorded between 1970 and 1975 at the Faculty of Dentistry, University of British Columbia, Vancouver. Only radiographs of individuals 20 years and over were considered for impaction and congenital absence of third molars. For all other impacted, congenitally missing, supernumerary and peg teeth, radiographs of patients of age seven years and over were analyzed. Both medical and dental histories were carefully evaluated, and cases with a history of systemic disease at an early age were discarded. Special attention was paid to a history of orthodontic treatment and extraction. Any cases about which the researchers disagreed were excluded.

Data collected were pooled and analyzed on a computer for frequency, anatomical location, sex distribution and tooth type involved for impacted teeth. A modified student t-test and chi-square analysis were performed to determine statistical significance.

Frequency of impacted, congenitally missing, peg and supernumerary teeth in permanent dentition — Table 1

No. of individuals examined	Impacted		Congenitally missing		Peg		Supernumerary		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
7,886	546	6.9	288	3.56	25	0.32	20	0.25	890	11.03

Results

The frequency of impacted, congenitally missing, supernumerary and peg teeth for all subjects examined is given in Table 1. One may note from the table that approximately 11 per cent of the individuals have permanent tooth anomalies. Impaction is the most common form of permanent tooth anomaly followed by congenitally missing, peg and supernumerary teeth (Table 1).

Of the 7,886 cases examined in the present study, 546 (6.9 per cent) individuals had impacted teeth (Table 1). Table 2 shows impaction frequency according to sex. The higher incidence found for males (54 per cent) was statistically significant at the 0.05 level ($t = 2.06$). With the exception of one case, in which 17 teeth were impacted, no individual had more than four impacted teeth. The mean number of impacted teeth per individual for both sexes was 1.7.

Table 3 shows the anatomical distribution and frequency of the total number of impacted teeth. One may conclude from this table that there is no predominance of either left or right side of the jaw. The distribution for maxilla and mandible, however, illustrates a higher incidence in the latter, which is significant at the 0.001 level. Third molars are the most frequently impacted teeth (86 per cent) followed by canines (8 per cent) and second premolars (4.5 per cent). Impaction of third molars is more frequent in the mandible, while impacted canines are more frequent in the maxilla. There is no predominance of left or right side for both third molar and canine impaction. Further analysis of the data shows that only the mandibular third molar impaction is more frequent in males than in females ($P < 0.01$). Twenty-eight (5 per cent) cases display impaction of all four third molars, while in only one case all four canines and first premolars are impacted. Bilateral impaction of third molars is higher in the mandible (80 cases) than in the maxilla (31 cases). Bilateral impaction of canines occurred only in the maxilla (seven cases) and of second premolars equally in the maxilla and the mandible (three cases each). There was no sex predominance in bilateral impaction for any tooth type.

Discussion

There is a paucity of epidemiological studies on the prevalence of impacted teeth. Earlier studies from the United States[8-12] and Sweden[13] reported the incidence of impacted teeth as between 16–23 per cent. Montelius[14] observed that 30 per cent of Chinese and 12 per cent of Caucasians had impacted teeth. The incidence of 6.9 per cent observed in the present study appears to be the lowest reported thus far.

Pindborg[15] noted that females have a higher incidence of impacted teeth than males and that the maxilla shows a larger number of impacted teeth than the mandible. Results of the present study, however, show a statistically significant predominance of impacted teeth in males and in the mandible (Tables 2 and 3). Similar observations were also made earlier by Cramer.[8]

Observations of the present study agree with earlier

Frequency of impacted teeth according to sex — Table 2

No. of impacted teeth	No. of males	No. of females	Total
1	163	138	301
2	90	74	164
3	25	23	48
4	15	17	32
17	1	—	1
Total	294	252	546
Total no. of impacted teeth	499	419	918

Anatomical distribution and frequency of impacted teeth by type — Table 3

Type	No. of impacted teeth	Maxilla		Mandible	
		Right	Left	Right	Left
Central incisor	1	0	1	0	0
Lateral incisor	3	0	0	1	2
Canine	69	29	32	3	5
First premolar	8	2	2	3	1
Second premolar	42	8	15	11	8
First molar	0	0	0	0	0
Second molar	4	0	1	2	1
Third molar	791	141	145	264	241
Total	918	180 (19.6%)	196 (21.4%)	284 (30.9%)	258 (28.1%)

reports[8,9,11,12] that the most frequently impacted teeth are, in order of frequency, third molars, canines snd second premolars. Vergopoulos,[16] however, noted in his study that the most commonly missing tooth was the canine.

In the present study, mandibular third molars were more commonly missing than maxillary third molars. This observation is contrary to those made by Mead,[9] Dachi and Howell[11] and Krammer and Williams.[12] Cramer[8] and Goblirsch,[17] on the other hand, observed no difference between the maxilla and mandible in the incidence of third molar impaction.

Dachi and Howell[11] noted that there is no sex predominance in third molar impaction. In our study, however, the mandibular third molars were more commonly impacted in males than in females. Also, Krammer and Williams's observation[12] that unilateral and bilateral third molar impaction have identical frequencies is not in agreement with our results. We observed that bilaterally impacted third molars involved only a total of 222 teeth (111 cases) of the total of 791 impacted third molars.

The incidence of canine impaction is 8 per cent in the present study. The rate differs from earlier reports of Bass[18] and Rayne[19] who noted an incidence of 1.5 to 2 per cent. Our results agree with these authors that approximately 90 per cent of canine impaction occurs in the maxilla and that there is no sex difference and no predilection to the left and right side.

The literature contains little information regarding impacted premolars. Our observation, that impaction of second premolars is more common than first premolars, is in agreement with Nordenram and Stromberg.[20] These authors also observed that mandibular second premolars were more commonly impacted in females than in males, and more on the right side than on the left side. In the present study, however, males and females were equally affected and there was no statistically significant difference between the left and right side of the mandible (Table 3).

Conclusions

1. In the observed Canadian population, 11 per cent had permanent tooth anomalies which included impacted, congenitally missing, supernumerary and peg teeth.
2. Tooth impaction was present in 6.9 per cent of the population.
3. Third molars represented 86 per cent of all impactions, canines 8 per cent and second premolars 4.5 per cent.
4. Males showed a higher incidence of impactions than females.
5. The mandible showed higher incidence of impactions than the maxilla.
6. Bilateral impactions of third molars occurred more commonly in the mandible, while that of canines occurred only in the maxilla.

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The authors are grateful to Mrs. Vicki B. Koulouris for her excellent secretarial assistance.

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STUDIES OF PERMANENT TOOTH ANOMALIES IN 7,886 CANADIAN INDIVIDUALS

II: CONGENITALLY MISSING, SUPERNUMERARY AND PEG TEETH

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The epidemiological studies of dental disease are important from the viewpoint of future understanding, control and prevention. Such studies may not only disclose intra- and inter-population variations in the prevalence of dental diseases but also may unravel their causes.[1]

Considerable interest is attached to congenitally absent peg and supernumerary teeth, not only because of the pathological condition but also because of their evolutionary significance. Although numerous studies analyzing the aforementioned anomalies have been reported in different world populations, only two have been reported in the Canadian population.[2,3]

In the present study, we are reporting on a survey of congenitally missing, peg and supernumerary teeth in 7,886 individuals whose radiographs were examined at the Faculty of Dentistry, University of British Columbia.

Materials and methods

The methodology is identical to Part I of this article.

Results

Congenitally missing teeth

Two hundred and eighty-eight cases of a total of 7,886 show congenitally missing teeth, giving an incidence of 3.56 per cent. After 149 cases (1.94 per cent) of missing third molars are exlcuded, the frequency drops to 1.82 per cent (139 cases of a total of 7,637). The frequency of congenitally missing teeth in males and females is presented in Table 1. Females (56 per cent) show a higher incidence than males (44 per cent), which is significant at the 0.05 level ($t=2.48$). The mean number of missing teeth is 2.2 for males and 2.3 for females. Analyses of the number of missing teeth show 43 per cent of individuals having one, 30 per cent having two, 7 per cent with three and 13 per cent with four missing teeth. Approximately 7 per cent show five or more missing teeth. Females have a higher number of missing teeth than males ($P<0.001$).

Table 2 shows the anatomical distribution and frequency of congenitally missing teeth. One may conclude that there is no predominance of either the left or right side of jaw. The overall distribution for the maxilla and mandible is similar. Third molars are the most frequently missing teeth (55 per cent), followed by second premolars (23 per cent) and lateral incisors (13 per cent).

Congenitally missing lateral incisors, canines and first premolars show a predilection for the maxilla over the mandible whereas central incisors and second premolars show the reverse ($P<0.01$) (Table 2). Missing third molars do not show any statistically significant difference between the maxilla (168 teeth) and mandible (189 teeth). Further analysis of the data shows that females have a higher incidence of missing third molars (215 teeth), second premolars (95 teeth) and first premolars (17 teeth) than males (142 third molars, 51 second premolars and four first premolars) ($P<0.01$). Other tooth types do not show any statistical difference in sex distribution.

Females demonstrate a higher incidence of congenital absence of all four third molars (21 cases) and second premolars (six cases) than do males (13 cases of third molars and two of second premolars). The incidence of bilaterally missing third molars (23 females and 22 males) and second premolars (14 females and 12 males) is similar between males and females, whereas that of the lateral incisor is more common in females (15 cases) than in males (nine cases). All the bilaterally missing lateral incisors are found in the maxilla. The mandible is the predominant site (19 cases) over the maxilla (seven cases) for bilateral absence of second premolars. Bilaterally missing third molars show no site preference (21 cases maxilla, 24 cases mandible).

Frequency of congenitally missing teeth according to sex — Table 1

No. of congenitally missing teeth	Males	Females	Total
1	56	67	123
2	43	44	87
3	9	12	21
4	14	23	37
5	2	8	10
6	2	4	6
11	1	2	3
19	1	—	1
Total	128	160	288
Total no. of congenitally missing teeth	275	371	646

Anatomical distribution and frequency of maxillary peg lateral incisors in males and females — Table 3

Location in maxilla	Frequency of total number of peg teeth			
	Male	Female	Total	%
Right side	8	12	20	64.5
Left side	4	7	11	35.5
Total	12	19	31	100

Anatomical distribution and frequency of congenitally missing teeth — Table 2

Type	No. of teeth	Maxilla		Mandible	
		Right	Left	Right	Left
Central incisor	16	0	0	7	9
Lateral incisor	83	40	38	3	2
Canine	15	5	7	2	1
First premolar	21	7	8	3	3
Second premolar	146	25	22	48	51
First molar	2	1	1	0	0
Second molar	6	1	1	2	2
Third molar	357	88	80	96	93
Total	646	167 (25.8%)	157 (24.4%)	161 (24.9%)	161 (24.9%)

Anatomical distribution and frequency of supernumerary teeth in males and females — Table 4

Anatomical site	Frequency of total number of supernumerary teeth					
	Male		Female			
	Right	Left	Right	Left	Total	%
Maxilla	5	7	4	5	21	81
Mandible	1	2	1	1	5	19
Total	6	9	5	6	26	100

Peg teeth

Twenty-five patients (0.32 per cent), 11 males and 14 females, showed 31 peg teeth (Table 3). The sex difference is not statistically significant. All peg teeth are maxillary lateral incisors and in six cases (25 per cent) they occur bilaterally. When occurring singly, there is a predominance of the maxillary right side ($P<0.01$).

Supernumerary teeth

Twenty-six supernumerary teeth are found in 20 patients (0.25 per cent), 11 males and nine females. The incisor area accounts for nine teeth (eight cases), of which eight are in the maxilla. In four cases the premolar region involves five teeth (four first premolars and one second premolar), three of which are in the maxilla. A supernumerary molar tooth occurred in one case on the mandibular right side. Seven cases show 11 fourth molars, 10 of which are in the maxilla. Overall, the maxilla accounts for 81 per cent of the supernumerary teeth (Table 4) and is the site of choice over the mandible ($P<0.01$). No predisposition, however, is noted for the right or left side of the jaw.

Discussion

A review of the literature indicates the necessity for a uniform method of collecting data. Some studies were concerned with only presence, absence, size and morphology of the third molars whereas in others, the third molars were not considered. Hypodontia is a defect prevalent in populations of the world and is not limited to any one group. Table 5 shows the incidence of congenitally missing teeth, excluding third molars, as reported in various countries.

Summary of the incidence of congenitally missing teeth (excluding third molars) in the population of different countries. Table 5

Country	Incidence (%)	Authors
Austria	9.6	Volk[4]
Australia	5.9	Davies[5]
Canada	4.1	Castaldi et al[2]
Canada	0.15	Curzon & Curzon[3]
England	4.3	Rose[6]
France	6.12	Augard & Gayard[7]
Germany	3.5	Sonnabend[8]
Hungary	2.06	Polczer & Sinkovits[9]
Israel	0.3	Rosenzweig & Gaborski[10]
Israel	4.60	Eidelman et al[11]
Japan	6.6	Niswander & Sujaku[12]
Norway	4.5	Gimnes[13]
Norway	10.4	Hunstadbraten[14]
Sweden	6.1	Grahnen[15]
Switzerland	3.4	Dolder[16]
U.S.A.	2.3	Werther & Rothenberg[17]
U.S.A.	2.4	Byrd[18]
U.S.A.	6.01	Clayton[19]
U.S.A.	3.5	Muller et al[20]
Yugoslavia	1.0	Avramovic[21]

The incidence of congenitally missing teeth, excluding third molars, is 1.82 per cent in the present study, which is lower than in most studies reported on the European and North American population. In the Canadian population, Curzon and Curzon,[3] from their observations of 1,309 British Columbia children, reported an incidence of 0.15 per cent whereas Castaldi and associates[2] reported 4.1 per cent congenitally missing teeth in Alberta children. The findings of Curzon and Curzon were based only on clinical inspection and morphological observations which may have contributed to a reported low incidence of congenitally missing teeth. When third molars are included in the data, the incidence of congenitally missing teeth in our study is 3.56 per cent. Earlier Brekhus et al[22] had observed an incidence of 1.7 per cent in a U.S.A. study and Sanchez[23] 14.2 per cent in an Argentina population.

In the present study, females show a higher frequency of congenitally missing teeth than males. A similar observation was made by Castaldi et al,[2] Rose,[6] Niswander and Sujaku,[12] Hunstadbraten[14] and Muller et al.[20] Curzon and Curzon[3] and Grahnen[15] found a higher incidence in males, while Eidelman et al[11] and Dolder[16] reported no sex difference in the incidence of congenitally missing teeth.

Our observations show that the frequency of hypodontia in the maxilla and mandible is similar. This observation agrees with Rose[6] but differs from that of Dolder[16] who found the mandible to be the predominant site, and Muller et al,[20] Brekhus et al[22] and Hatziotis[24] who noted a higher incidence in the maxilla than mandible. Our observation that the frequency is similar between the right and left side agrees with the aforementioned authors.

From the review of reports noted in Table 5, it appears that the tooth most frequently missing is related to the gene pool, e.g., shows geographical and racial differences. The rank order of missing teeth in the present study is third molars, mandibular second premolars and maxillary lateral incisors. Brekhus et al,[22] who included third molars in their study of a U.S.A. population, observed the rank order to be maxillary lateral incisors, third molars and mandibular second premolars. It is interesting to note that when third molars are excluded, the most commonly missing tooth in a population of Austria,[4] Canada[2] (including the present study), England,[6] Norway,[13,14] Sweden[15] and Switzerland[16] was the mandibular second premolars, whereas in France,[7] Germany,[8] Greece,[24] Israel,[11] U.S.A.[17,20,22] and Yugoslavia[21] it was the maxillary lateral incisors, and in Japan[12] the mandibular lateral incisors.

In the studies listed in Table 5, with the exception of Japan, mandibular second premolars and maxillary lateral incisors together accounted for 50 to 68 per cent of all congenitally missing teeth. In our study, mandibular second premolars and maxillary lateral incisors together are responsible for 79 per cent of all the congenitally missing teeth. When third molars are also considered, the figure is 91 per cent.

It has been generally acknowledged that the third molar is the most commonly missing tooth type,[25,26] although an

occasional report has noted otherwise.[22] The incidence of congenitally missing third molars in different population studies has been reported as between five and 27 per cent.[15,25,27-31] In the present study the prevalence of only 1.94 per cent is observed in a population of 7,886.

Our observation that females have a higher incidence of third molar agenesis than males is in agreement with Hellman's[25] data but differs from that of Goblirsch.[27] Grahnen[15] and Nanda[29] noted that hypodontia of third molars was more common in the maxilla than mandible. In the present study, there is no predominance of either site. Equal distribution between the left and right side as noted by Grahnen[15] and Hellman[25] is confirmed in our study. Nanda[29] has observed that the right side was more commonly involved than the left side.

Our observations on the maxillary lateral incisors and mandibular second premolars concur with studies noted in Table 5. For the sake of brevity the results are not discussed.

The frequency of peg-shaped maxillary lateral incisors has been reported to be between 0.5 and 8.4 per cent in different population studies.[15,19,22,32-34] The frequency of 0.32 per cent in the present study is lower than all the aforementioned studies. Castaldi and associates,[2] in their study of an Alberta population, observed a zero frequency of peg teeth. Other observations in the present study agree with findings of Grahnen,[15] Brekhus et al[22] and Clayton.[19]

The prevalence of supernumerary teeth ranges from 0.1 to 3.6 per cent in different populations.[2,3,10,12,16,19,35-39] In the present study, a 0.25 per cent incidence is noted, which is considerably less than that reported in earlier studies of a Canadian population.[2,3] Many of the aforementioned studies have noted that supernumerary teeth are more frequently seen in the maxillary incisor and molar areas. Furthermore, the occurrence of supernumerary teeth was found more frequently in males than females, and more often in the maxilla than mandible. Our results agree with these observations which were made on different populations.

Conclusions:

1. The frequency of hypodontia in a British Columbia population is 3.56 per cent. When third molars are excluded, the frequency drops to 1.82 per cent.
2. Hypodontia is more prevalent in females than in males.
3. There is no predominance of either the mandible or the maxilla and the left or right side of the jaws.
4. The rank order for missing teeth is third molars, mandibular second premolars, maxillary lateral incisors, maxillary second premolars, mandibular central incisors, maxillary first premolars and maxillary canines.
5. The incidence of peg teeth is 0.32 per cent; all are maxillary lateral incisors.
6. The occurrence of supernumerary teeth is 0.25 per cent, of which 81 per cent are found in the maxilla.

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THE EFFECTIVENESS OF A CHEMICALLY POLYMERIZED SEALANT IN PREVENTING OCCLUSAL CARIES: TWO YEAR RESULTS

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This article outlines the use of a chemically polymerizing bis-GMA resin to prevent occlusal caries in permanent molars. Two years after sealing 352 first permanent molars in grade 2 children, the sealed teeth had an 80 per cent reduction in occlusal caries when compared to unsealed half mouth controls. The retention rate was 85.8 per cent at two years and 89.6 per cent after one year.

The development by Buonocore[1] in 1955 of a simple acid-etching technique for adhering acrylic resin to enamel, applied to the epoxy related bis-GMA resin synthesized by Bowen[2] in 1958, ushered in the age of adhesive dentistry. Although the application of these discoveries to clinical dentistry did not become apparent for several years,[3-6] new treatment procedures employing adhesive techniques have since developed and advanced markedly in many disciplines of the profession, not the least of which has been preventive dentistry.

For decades, dentistry's most effective tool in caries prevention has been fluoridation of tooth enamel, whether systemically ingested or topically applied. Results of fluoridation in preventing smooth surface enamel lesions have been consistently dramatic. In contrast, the need for a caries inhibiting agent to produce as effective results on the pits and fissures of enamel has been dramatically consistent.[7-10] The use of the bis-GMA resin applied to acid-etched occlusal surfaces appears to have worthwhile merit as an agent to inhibit the development of caries in pits and fissures of posterior teeth, both as a single preventive measure and as a supplement to fluoridation.

Studies using pit and fissure sealants have been done over the past 12 years, using a variety of commercial bis-GMA resin materials. Some have used chemical autopolymerizing catalysts (Table 1), while others have used ultraviolet light sensitive catalysts. Studies have been on permanent and primary teeth,[11-13] in fluoridated and non-fluoridated areas, using and not using acid etching,[6] employing dentists and dental auxiliaries to apply the sealant, and have been from one to four years' duration.[14-16]

Materials other than the bis-GMA resins such as cyanoacrylates, polyurethanes[17,18] and silicophosphate cement[19] have been researched as fissure sealants. However, due to their poor retentive properties, these materials do not appear to hold much promise in caries prevention. Conversely, glass ionomer cements are reported to have been effective in a two-year study to seal pits and fissures exceeding 100 μm.[20]

Although various combinations of the foregoing techniques and materials have been utilized to study a variety of factors, the major concerns of most studies have been the retention of the sealants and their effectiveness in decreasing pit and fissure caries as compared to non-sealed controls. This two-year study attempts to corroborate earlier studies by other researchers and uses an experimental pink coloured, self-curing bis-GMA resin applied by a dental student onto acid etched surfaces of recently erupted first permanent molars.

Materials and methods

The study site was a non-fluoridated middle-class suburb of Vancouver, B.C. Following school board approval, consent letters were sent home with 300 grade 2 children located in eight elementary schools. Clinical examinations by a dentist examiner, using a portable light, mouth mirrors and explorers, were conducted on those children returning a signed form. The same dentist conducted all subsequent examinations. The occlusal surfaces of all erupted first permanent molars were examined and recorded as filled, carious, sound or sticky. Surfaces which offered resistance to explorer removal after moderate pressure, without any visual signs of caries, were deemed sticky. Right to left pairs of first permanent molars assessed as sound or sticky were included in the study. From 266 children, 425 pairs were obtained. Radiographs were not taken.

In a one-chair school dental clinic, a third year dental

Fissure sealant studies using self-curing bis-GMA resins — Table 1

Study	Duration (years)	No. sealed 1st permanent molars	Sealant	Etchant	% Complete retention	% Caries reduction
Roydhouse[6]	3	80	Experimental	None	N/A	29
Rock[18]	2	167 (Molars & Premolars)	Epoxylite 9075*	50% phosphoric acid	51.5	64.6
Brooks et al[24]	1	239	Delton†	35% orthophosphoric acid	94.6	N/A
Bojanini et al[25]	3 1	21 275	Delton†	35% orthophosphoric acid	76.2 91.6	76.5 90.1
Thylstrup and Poulsen[26]	1	305	Concise Enamel Bond‡	37% orthophosphoric acid	73	69
Charbeneau[13] Dennison and Ryge	1½	384	Kerr§	50% phosphoric acid	74	75.9

* Lee Pharmaceuticals
† Johnson and Johnson
‡ 3M Company
§ Kerr Manufacturing Co.

student assisted by a certified dental assistant applied a sealant, using an acid etch technique, to the occlusal pits and fissures of one molar in each pair. Dice were used to decide which side was to be sealed and which side was to serve as an unsealed control. Using cotton rolls, water spray, compressed air and suction, the following steps were followed: rubber cup prophylaxis, wash, dry, etch, wash, dry, seal.

The sealant was a pink coloured self-curing bis-GMA resin*. The etchant contained 37 per cent orthophosphoric acid. The acid etch prophy paste* contained no fluoride, glycerine, oils or other organic compounds which could interfere with the etching process. The etching agent was applied by cotton pellet and left in contact with the occlusal enamel for 90 seconds. Following thorough rinsing and drying, the liquid resin and catalyst were mixed on a paper pad and applied by cotton pellet to the etched chalky coloured enamel. The curing time was 120 seconds. Cotton rolls and a good vacuum system were used to maintain a dry field.

A form letter was sent to all dentists in the area, describing the study and requesting that routine preventive and restorative procedures not be altered. Clinical reexamination of all subjects was conducted 12 and 24 months after sealant application. The occlusal surfaces were noted as filled, carious, sound or sticky. The sealants were recorded as intact, partially lost or completely lost. Six months later a sample examination was conducted for sealant retention.

*3M Company

Results

The retention of the sealants 12 and 24 months after application was 89.6 and 85.8 per cent, respectively (Tables 2 and 3). The main area of sealant loss was the distal pit of the maxillary molars. When the central pit sealant was intact and the distal pit sealant lost, this was recorded as a partial loss of sealant. Teeth that were restored were recorded as having lost the sealant.

The caries rate of sealed and unsealed control molars after 12 and 24 months are shown in Tables 4 and 5. The caries reduction in sealed teeth was 80.7 per cent after 12 months and 79.9 per cent after 24 months.

Discussion

The uniqueness of this study was in the material, which was a self-curing coloured sealant (Fig. 1). Most clinical sealant studies have used a clear UV polymerized sealant. The pink colour greatly enhanced sealant detection immediately after application and at subsequent examinations. Not one complaint or inquiry was received from subjects or parents concerning the colour. One family dentist did make an inquiry. He had mistaken the sealant for disclosed plaque.

The retention of 86 per cent of the sealant after two years is high, considering that the rubber dam was not used during application. Retention rates of other studies have ranged from 45[21] to 87[11] per cent after two years, with Burt et al[22] having only 39 per cent total retention after six months. In

Retention of sealant in 393 first permanent molars 12 months after application — Table 2

	Intact		Partial loss		Complete loss*		Total
	No.	%	No.	%	No.	%	
Maxillary	156	84.3	19	10.3	10	5.4	185
Mandibular	196	94.2	5	2.4	7	3.4	208
Total	352	89.6	24	6.1	17	4.3	393

*Includes 13 restored teeth of which 4 were MO's

Retention of sealant in 352 first permanent molars 24 months after application — Table 3

	Intact		Partial loss		Complete loss		Total
	No.	%	No.	%	No.	%	
Maxillary	128	78.0	27	16.5	9	5.5	164
Mandibular	174	92.6	4	2.1	10	5.3	188
Total	302	85.8	31	8.8	19	5.4	352

Caries rate after 12 months in 393 pairs of first permanent molars — Table 4

	At risk	Caries		Filled		Total	
		No.	%	No.	%	No.	%
Control	393	43	10.9	50	12.7	93	23.7
Sealed	393	5	1.3	13	3.3	18	4.6

Caries rate after 24 months in 352 pairs of first permanent molars — Table 5

Table 5

	At risk	Caries		Filled		Total	
		No.	%	No.	%	No.	%
Control	352	29	8.2	101	28.7	130	36.9
Sealed	352	5	1.4	21	6.0	26	7.4

Fig 1 Test sealant in place 24 months after application.

six of the sealed teeth that were restored in this study, the pink sealant was visible at the buccal-lingual margins of the amalgam, indicating that the sealant remained in place during cavity preparation. The pre-etching cleaning with an oil-free acid-etch paste and the use of non-contaminated compressed air may have contributed to the high retention.

A well-dried tooth after etching, without contamination from saliva, appears to be the essential step in sealant application. The distal pits of the maxillary first molars are difficult to keep dry and they produced 54 per cent of all sealant losses after 24 months. This is consistent with other studies[23-26] which found that retention of sealant was less on molars than on premolars and less on the distal fossae of maxillary molars than on other areas of molar occlusal surfaces.

A caries reduction of 80 per cent after 24 months is comparable to other two-year studies. Both Buonocore[11] and Rock[18] had a reduction of 99 per cent with a UV sealant, while Horowitz et al[27] and Going et al[28] had a 67 and 55 per cent reduction respectively, using the same sealant system. In addition, the studies of Cons et al[29] and Gourley,[12] using the UV system, showed an occlusal caries reduction of 54 and 57 per cent, respectively.

Fewer studies[6,13,18,24-26] have been done using self-curing bis-GMA resins. However, the retention rates and caries reductions compare favourably with the ultraviolet light polymerized resin. The materials used and the results of the former studies are summarized in Table 1.

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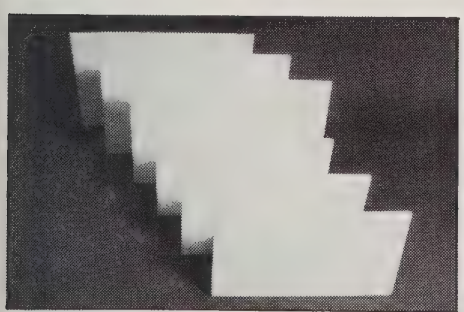

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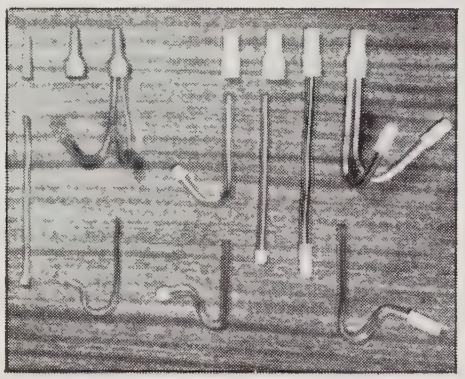

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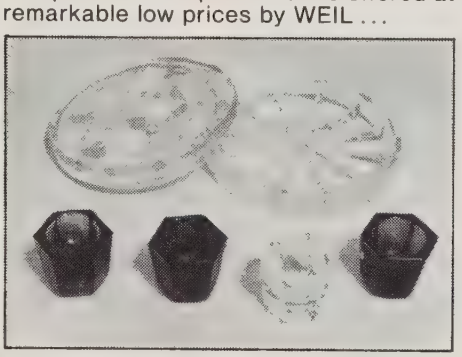

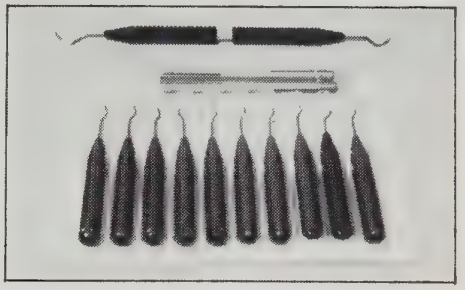

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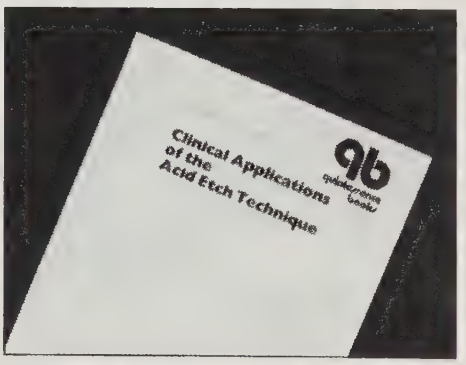

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FACTEURS A CONSIDERER POUR ASSURER UNE PROTECTION ADEQUATE A LA PULPE LORS DE LA PREPARATION D'UNE DENT EN VUE DE RECEVOIR UNE PROTHESE PARTIELLE FIXE

Dr. Pierre Poulin
737 Royale
Beauport, Québec

Votre journal doit atteindre de multiples objectifs dont, bien sûr, l'information scientifique. L'information doit aussi être d'intérêt le plus général possible et c'est pourquoi nous acceptons avec empressement les articles spécialisés ou d'allure généraliste faisant un rappel des principes de base.

Nous croyons que les confrères trouveront profiable la lecture du présent travail du docteur P. Poulin qui résume ici les considérations nécessaires à la conservation de la vitalité pulpaire dans les différentes phases de fabrication d'une prothèse partielle fixe.

1. L'épaisseur de la dentine résiduelle

Les auteurs en général, s'accordent à dire qu'une pulpe ne subira pas de pathoses pulpaires irréversibles si elle est protégée par une épaisseur de dentine d'au moins 2mm dans les conditions de préparation normale. Cependant, en P.P.F., à cause de la très grande étendue des restaurations, il est parfois difficile de garder cette épaisseur de 2mm, comme par exemple, sur les incisives, en raison du peu de dimension bucco-linguale où il est rarement facile de conserver une surface idéale de 2mm, compte tenu de 1.5mm qu'exige la porcelaine de recouvrement.

Grâce à la haute vitesse et au système de refroidissement à l'eau, la taille de la préparation près de la pulpe est peu traumatisante si elle est faite avec délicatesse. Cependant, si la restauration finale est métallique et près de la pulpe, le patient pourra recevoir les changements thermiques et ressentir la douleur parce qu'on n'aura pas su tenir compte du fait que, si la dentine demeure le meilleur isolant thermique en couche épaisse, en couche mince il est nécessaire de compenser par un autre matériau.

2. La carie et l'exposition pulpaire

Bien avant que les bactéries d'une carie aient atteint la pulpe, les toxines et les acides diffusent à travers les tubuli dentinaires vers la pulpe et, dans les cas plus sévères, on peut être en présence de micro-expositions pulpaires difficiles à déceler après l'ablation de la carie. Par mesure de protection, il est recommandé de déposer une couche d'hydroxide de calcium pour favoriser la formation de dentine secondaire et pour assurer une protection isolante minimale à la pulpe.

Par contre, si l'exposition pulpaire est évidente mais très restreinte, il faudra couvrir la pulpe d'hydroxide de calcium et garder la dent sous observation pendant une assez longue période. Cependant cette procédure est très risquée, peut-être même à rejeter d'emblée. Un traitement endodontique sera de beaucoup préférable même au risque de modifier le plan de traitement original.

3. La surchauffe de la dent lors de la taille de la préparation

La quantité de chaleur dégagée par un instrument rotatif dépend d'au moins quatre facteurs:

1) la quantité de pression exercée.
2) la grosseur de la fraise ou du disque.
3) la qualité du tranchant de la fraise ou du disque.
4) la vitesse de l'instrument rotatif.

Aujourd'hui la haute vitesse soustrait la pression dangereuse sur la dent à préparer à condition d'utiliser des fraises bien tranchantes qui exécutent le travail d'ablation du tissu dur tant à l'aide de la turbine que du fraisage à tours lents.

A toute friction dégageant une chaleur, la réfrigération est de rigueur soit:

a) par jet d'air
b) jet d'air et d'eau préférablement

En neutralisant la chaleur, on ne risque pas les fréquentes réponses pulpaires irréversibles.

Des auteurs préconisent l'utilisation du jet d'air seulement comme réfrigérant. Ces derniers prétendent qu'une dent préparée ainsi subit une augmentation de température acceptable. Cette technique, de plus, facilite les opérations avec l'élimination de l'eau.

Cependant, selon une étude de K. Langeland et L.K. Langeland, sur 32 dents préparées avec une turbine refroidie à l'air seulement, 26 ont subi des brûlures de la dentine; on a de plus observé histologiquement une migration importante des odontoblastes et une quantité d'érythrocytes dans les tubuli dentinaires et de l'hyperémie. Comme la dentine a

un besoin naturel d'humidité, cette migration des odontoblastes est provoquée par une augmentation de la pression intrapulpaire dans le but compensatoire de fournir de l'eau à la dentine asséchée par l'air de la turbine.

Le docteur Harold R. Stanley affirme que les brûlures dentinaires apparaissent à l'endroit précis du fraisage et que, par conséquent, la température globale de la dent n'a pas nécessairement changée de façon significative même si un dommage irréversible est survenu à la pulpe.

Comme l'eau possède un plus grand pouvoir d'absorption de la chaleur que l'air à cause de sa plus grande densité, son utilisation devient alors importante pour aider à diminuer le très grand traumatisme que suppose le fraisage.

4. La dessiccation de la dentine

La répétition fréquente de l'assèchement des surfaces fraisées peut, à la longue, provoquer une migration importante des odontoblastes dans les tubuli dentinaires et une apparition de vésicules dans la pulpe dues au phénomène inflammatoire. L'assèchement doit donc se faire sans exagération tant au point de vue durée que fréquence.

5. Le traitement de la dent après l'exploration de pilier

a) L'utilisation de médicaments:

Autrefois, après avoir terminé une préparation, on nettoyait la dent avec de l'alcool, du phénol ou du nitrate d'argent. Ces produits sont maintenant reconnus comme étant inutiles, parfois même dangereux s'ils sont déposés près de la pulpe. Le nettoyage se fait adéquatement avec une boulette de coton inbibée d'eau, et dans une situation de proximité pulpaire, il est recommandé de faire une application de prednisolone pendant environ une minute dans le but de réduire la réaction inflammatoire.

Cependant, si on craint une micro-exposition par la carie, la prednisolone est contre-indiquée puisqu'elle élimine les mécanismes de défense et favorise alors la dégénérescence pulpaire à plus ou moins brève échéance.

L'eugénol demeure sécuritaire et il est recommandé de l'utiliser pour cimenter les restaurations temporaires afin de soulager la pulpe avant la cimentation finale.

b) La reconstruction de la dent-pilier

Il est féquemment nécessaire d'avoir à reconstituer une couronne clinique trop réduite et inadéquate aux fins d'une dent-pile.

L'amalgame ou le composite de reconstitution (coreform) avec tenons vissés doit alors être utilisé, avec protection par un hydroxide de calcium. Le composite a le grand avantage de nécessiter moins de pression que le foulage de l'amalgame.

6. La fabrication du temporaire

Le maintien d'espaces édentés, la protection de la pulpe contre les influences extérieures nécessitent le recouvrement temporaire des dents préparées.

Cependant, sa fabrication à l'aide d'une résine autopolymérisante peut être assez dangereuse pour la vitalité de la pulpe.

Il convient d'isoler la dentine, soit par une légère couche d'un corps gras, ou même de la salive. A la polymérisation, la pulpe pourra devenir endommagée par la chaleur. A intervalles, l'acrylique doit être retiré, refroidi et re-inséré jusqu'à la prise définitive de la résine.

7. Le type d'impression

L'épaisseur de la dentine résiduelle doit être considérée dans le choix du matériau à employer. La prise d'une empreinte n'est pas traumatique pour la pulpe si on utilise un caoutchouc ou un hydrocolloïde réversible.

L'utilisation d'une douille de cuivre et de compound peut l'être si la température du compound n'est pas bien contrôlée. Ce contrôle est plus facile en utilisant le bain avec indicateur de température.

8. La cimentation

Le ciment à base d'acide phosphorique pour cimenter de façon permànente est possiblement nocif pour la pulpe si elle n'est pas prête à subir l'action de l'acide à travers les tubuli dentinaires. Il est donc important de s'assurer que les tissus pulpaires de la dent traitée se soient bien rétablis de toutes les procédures antérieures à la cimentation. En cas de doute, il est préférable de prolonger la période du recouvrement temporaire scellé au moyen d'un ciment à base d'eugénol.

Comme protection additionnelle, on conseille l'application d'une mince couche de vernis protecteur sur la dent avant la cimentation finale.

9. La percolation

Après la cimentation, une réponse pulpaire n'est pas toujours due à l'irritation par les produits utilisés. Elle peut être due à la percolation marginale. La diffusion des fluides buccaux entre la dent et la restauration peut provoquer la dissolution de certains matériaux, la sensibilité à plus ou moins brève échéance, la récidive de la carie et les pathoses pulpaires.

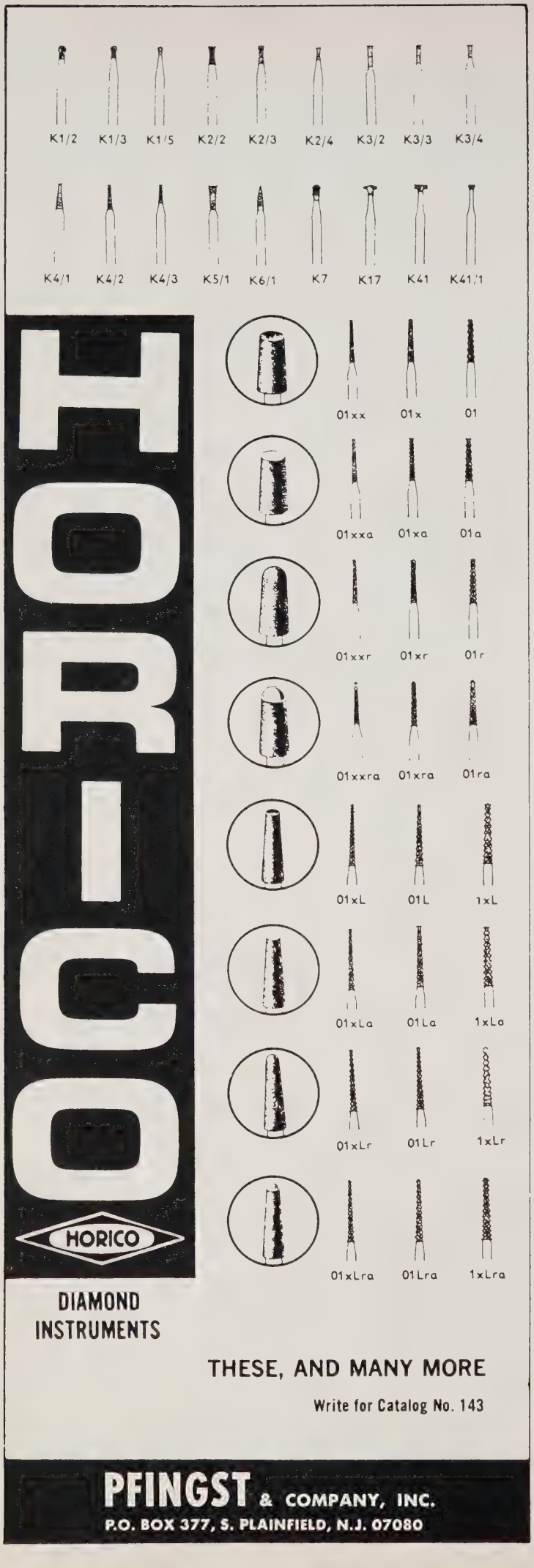
10. L'occlusion

Une couronne parfaitement adaptée mais en défaut au point de vue occlusion risque d'engendrer l'effritement du ciment, la percolation.

Une restauration qui provoque des contacts prématurés peut affecter les tissus pulpaires de façon considérable surtout s'ils ont déjà été beaucoup sollicités. Il est alors presqu'à souhaiter que la restauration se déloge complètement et que l'opérateur puisse réaliser alors la raison de son insuccès. Une P.P.F. ou une couronne qui se déloge à répétition est plus souvent la conséquence d'une mauvaise occlusion que d'un défaut dans la cimentation.

Conclusion

A la lumière de ces considérations, nous pouvons réaliser que chaque étape de préparation et de mise en bouche d'une prothèse partielle fixe peut provoquer une réponse pulpaire. Ces réponses pulpaires ont pu être observées en histologie



au cours de plusieurs expériences faites en laboratoire. Il est primordial de porter attention à ces causes possibles de dommages pulpaires d'autant plus qu'ils sont irréversibles dans la majorité des cas.

Les tissue pulpaires sont des tissus vivants et ils doivent être considérés comme tels. Soumis à certains stimuli, ils répondent en essayant de s'y adapter jusqu'au seuil de leur résistance. En fin d'analyse, on veut signaler que les travaux en P.P.F. dépendent d'une multiplicité de conditions qui déterminent le succès ou l'échec.

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Continued from page 268

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REMITTANCE MUST ACCOMPANY CLASSIFIED ADS.
FORMS CLOSE ON 1ST OF MONTH PRECEDING MONTH OF ISSUE.

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Marie Cosgrave, Classified Advertising Manager,
Canadian Dental Association,
1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6,
Telephone: (613) 523-1770.

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Box numbers must appear on envelope. Names of box number advertisers cannot be revealed.

Although the Canadian Dental Association believes that the classified advertisements which appear in these columns are from reputable sources, the Canadian Dental Association neither investigates the offers being made nor assumes any responsibility concerning them.

OFFICES AND PRACTICES

BRITISH COLUMBIA — Abbotsford. Dental offices for rent in modern professional building in Abbotsford, British Columbia, adjacent to hospital. Panoramic view. Apply to: McCallum Terrace Holdings, 2151 McCallum Rd., Abbotsford, B.C., V2S 3N8.

BRITISH COLUMBIA — Northern Vancouver Island. Practice for Sale. Three operatories equipped with fourth room plumbed and wired. Last year's gross was $186,000. Reply to CDA Box Number 1778.

BRITISH COLUMBIA — Vancouver. For Sale: Practice in West Broadway Center area. Prime location. Two complete operatories. Modern equipment. High gross. Resident dentist leaving country. Reply to CDA Box Number 1805.

BRITISH COLUMBIA — Victoria. For Sale. Two operatory practice in downtown Victoria, with emphasis on relaxed and enjoyable conditions for both patients and staff. Good gross on cash basis. Reply to CDA Box Number 1736.

ALBERTA — Hinton. Successful dental practice in town of 8,000, located 15 miles east of Jasper Park Gates. New professional building. Three fully equipped operatories, room for fourth. Modern equipment including Panelipse and G.E. X-ray. Owner will associate for short term; share of building can be included. Contact: Dr. J. Dan Pace, Box 1305, Hinton, Alta. T0E 1B0. Phone: (403) 865-3823.

SASKATCHEWAN — Nipawan. Established dental practice for sale. Most equipment one year old. Two Pelton Executive Units, chairs, lights plus third operatory. Available immediately due to passing of dentist. Excellent hunting and fishing. Reply to: Mrs. N. Cameron, Box 1595, Nipawan, Sask., or phone: (306) 862-4401.

SASKATCHEWAN — Saskatoon. For Sale: High gross, up-to-date, seven operatory practice in leading medical building. Suitable for three, plus hygienist. Present owner will remain on a percentage basis. Contact: Dr. S.R. Gelmon, 519 Medical Arts Building, Saskatoon, Sask. Phone: (306) 652-2341.

ONTARIO — London. For Sale: Established practice in London. Ground floor in small plaza, 2 operatories. Nice net to gross ratio. Reply to CDA Box Number 1764.

ONTARIO — Ottawa. Dental office available June 1st. Well established practitioner and surgeon has moved to Alberta. Ideal location. Long lease available in small shopping plaza on Bank Street at Heron Road (the hub of the wheel). Contact: Mr. Cecil Thorpe (613) 737-3151.

ONTARIO — Modern 3 operatory practice for sale. Room for expansion available if desired. Fully equipped with Dental-Eze chairs, Adec carts, central vacuum airconditioning, Philip x-ray and nitrous. Hospital privileges available. Excellent facilities in a modern medical centre, just half-hour from central Toronto. For further details, e.g., gross income, lease, etc. Reply to CDA Box Number 1769.

ONTARIO — Orthodontic Practice for sale, Ontario city, highly successful well established practice, well designed facilities, located in modern Medical-Dental Building, well equipped, multi-chair treatment area, x-ray dept. and laboratory, modern techniques, exceptionally high earnings, program for buyer to associate, term plan to buy out of earnings. For confidential information contact: Roi Management and Materials Incorporated, Mississauga, Ont. Phone (416) 278-4145.

ONTARIO — Practice For Sale: Busy rural practice, grossing $135,000 plus, located in a beautiful year-round recreational area, less than two hours east of Toronto. Hospital privileges available. Loyal and efficient staff. Price: $25,000. Reply to CDA Box Number 1797.

ONTARIO — Private Sale. Restored century home, with additional 1,000 ft. of self contained office facilities. 130 ft. water front property on West Lake, located in the village of Wellington Prince Edward County. Area in great need of dental services. Health reasons for sale. Photographs and description of property on request. Reply to CDA Box Number 1794.

ONTARIO (Southwestern). Excellent opportunity. For sale: Three-year-old preventive practice in professional building. New four-handed equipment in stylish professionally decorated office. Very high income. Open concept with room for expansion. Small city, thirty miles from large urban centre. Reply to CDA Box Number 1796.

ONTARIO — Toronto Central East. Prime office space in new medical centre, located by the subway bus lines at Pape and Danforth. Phone: (416) 483-0879 or write to: Dr. A. Karantonis, 757 Pape Avenue, Toronto, Ont. M4K 3T1.

ONTARIO — Toronto (North). Lease with option to buy: Twelve year old, high gross dental practice. Lease: present fully equipped operatory, or set up two operatories in a four operatory; two dentists share overheads. Excellent staff. Modern air-conditioned dental building, excellent parking. All benefits of a rural lakeside town. Reply to CDA Box Number 1803, or phone: (416) 722-5931.

ONTARIO — Toronto (Willowdale). For Rent: three day a week practice. Period July 1978 to July 1979. Inexpensive. Owner leaving country for one year and wishes replacement in his absence. Possibility of sale if terms can be reached. Contact: Dr. Barry Brooks, 5927 Yonge Street, Willowdale, Ont., or phone: (416) 223-0598.

ONTARIO — Toronto (Willowdale East) — Successful and growing practice for sale, located in modern building, professionally designed, 1085 sq.ft., 4 operatory suite well appointed, 2 matching operatories now equipped and separate x-ray room, good opportunity for 2 practitioners. Contact: Roi Management and Materials Incorporated, Mississauga, Ont. Phone: (416) 278-4145.

ONTARIO — Windsor. For sale high gross, well-established preventive oriented family practice; 2400 sq. ft., 7 operatories — 4 fully equipped; large business office; 2 private offices; consultation room; analgesia; panelipse; audio visual; modern, well decorated lower level of two storey building. Unique opportunity for 1 or 2 dentists. Owner returning to postgraduate school. Building also available. Contact: Dr. J. Guilzon (519) 258-2253.

ONTARIO — Windsor. Space available for specialist in periodontics, pedodontics or orthodontics in modern preventive oriented suburban office. Full-time hygienist on staff. Contact: Dr. Michael Malowitz, 7610 Tecumseh Road East, Suite 207, Windsor, Ont., N8T 1E9, or phone: (519) 944-2424.

QUEBEC — Montréal. Bureau entièrement réaménagé, bien disposé et bien décoré. Pratique jeune, avangardiste dans un milieu favorisé. Facile d'accès. Deux salles opératoires et une salle d'Hygieniste restent libres pour un jeune dentiste désirant une pratique de choix. Très avantageux. Répondez au Dr. André Mathieu, 2425 De Salaberry, Suite 114, Montréal H3M 1L1. Téléphone: (514) 337-3116.

PREVENTIVE DENTISTRY

McGill University, Montreal, Canada: Full-time position for an Assistant Professor in Preventive Dentistry. Candidates should possess a D.D.S. or D.M.D. or its equivalent and should have undertaken graduate work in cariology. To take charge of teaching preventive dentistry to undergraduate students as well as to conduct research related to preventive dentistry.

Salary commensurate with experience. Applicants must be prepared to meet the requirements for licensure in the Province of Quebec.

Position available September 1, 1978. Send curriculum vitae to Dr. J. W. Stamm, Faculty of Dentistry, McGill University, 3640 University Street, Montreal, Canada, H3A 2B2.

PERIODONTIST

McGill University, Montreal, Canada. FULL-TIME position for ***PERIODONTIST***. Candidates must be eligible for licensure by Order of Dentists of Quebec, have a National Dental Examining Board Certificate and be prepared to fulfill French language requirements enabling him/her to teach clinically and enjoy consulting and private practice privileges. Temporary license would be granted in the interim.

Academic rank and duties: Assistant Professor to participate in the undergraduate teaching of periodontics; research activities encouraged. Salary commensurate with teaching and clinical experience.

Please send curriculum vitae and reference to Dr. R. F. Harvey, Faculty of Dentistry, McGill University, 3640 University Street, Montreal, P.Q. H3A 2B2.

ASSOCIATESHIP AVAILABLE

YUKON — Whitehorse. Associate required in a newly established dental practice. Three operatories in a unique layout. Whitehorse offers the comforts of a city with history and wilderness at your fingertips. Please reply to: Chilkoot Dental Management, Box 5107, Whitehorse, Yukon Territory.

BRITISH COLUMBIA — Burnaby (seven miles from Vancouver). Associate required for modern and progressive practice. This group is well established and prevention-oriented, and has five other dentists. G.A. facilities available. Reply to: Dr. W.D. MacKenzie, 4587 East Hastings Street, North Burnaby, B.C. V5C 2K3, or phone (604) 291-6696 collect.

BRITISH COLUMBIA — Fernie. Full-time associate required, with option to buy in about a year. Contact: Dr. R.H. Campbell, Box 130, Fernie, B.C.

BRITISH COLUMBIA — Kamloops. Associate wanted for preventive, family-oriented practice. Three operatories, full time hygienist. Phone: (604) 554-2032 or write, Dr. R.J. Holditch, 31 - 750 Fortune Drive, Kamloops, B.C.

BRITISH COLUMBIA — Penticton. Associate wanted for extremely busy, modern dental office in Penticton, located in the beautiful Okanogan Valley. A four season playground for the outdoor enthusiast. Hospital Affiliation is available, excellent opportunity to practise comprehensive preventive and/or restorative dentistry. Please contact: Dr. Bob Abbey, 626 Main Street, Penticton, B.C. Phone: (604) 492-6844.

BRITISH COLUMBIA — Victoria. Associate required for a long established practice. Some capital required. Could lead to outright purchase at a later date. Reply to CDA Box Number 1785.

ALBERTA — Grande Prairie. Associate wanted for busy 15 year practice in city of 18,000. Modern 1500 sq.ft., 3 operatory office recently redecorated and re-equipped. City has all you could ask for — skiing, hunting, college, curling, auditorium etc. Excellent terms. Contact: Dr. H.J. Quinn, 9923A - 100 Avenue, Grande Prairie, Alta. Phone: (403) 532-3520, office or (403) 532-5165, home.

MANITOBA — The Pas. Dentist required for preventive-orientated practice. Modern office and equipment. Good working conditions. Reply to CDA Box Number 1800.

ONTARIO — Fort Frances. Associate opportunity. Very busy modern, 8 chair Dental Centre, urgently requires your skills to practise family dentistry. Community area of 22,000, known for winter - summer resort and sports activities, financial benefits high. Contact: Dr. Bud Danylchuk, phone: (807) 274-9001 or 274-6756, or Roi Management and Materials Incorporated, Mississauga, Ont., phone: (416) 278-4145.

ONTARIO — Niagara Peninsula. Associate wanted for quality-conscious, preventive-oriented, specialty and general dentistry group practice. This is a successful established practice with ultra modern facilities. Start immediately. Contact: Dr. Ivan Hrabowsky, 421 St. Paul Street, St. Catharines, Ont. L2R 3N4 or phone: (416) 688-1505.

ONTARIO — Timmins. Associate required. Opportunity to perform all phases of dentistry in a modern well equipped office. Phone: collect - (705) 267-1020.

ONTARIO — Windsor. Associate wanted for a large modern practice. Excellent opportunity for an ambitious individual. For more details, reply to CDA Box Number 1795.

NEWFOUNDLAND — St. John's. Associate required for busy practice in central St. John's. At present the practice has a dentist and a hygienist in a newly renovated office. Two fully equipped operatories (Midwest American) and use of orthopantomograph available to the associate. Write: Associate, 257 LeMarchant Road, St. John's, Nfld., or phone: (709) 726-6247.

OPPORTUNITIES AVAILABLE

BRITISH COLUMBIA — Kamloops. Dentist required for sunny Kamloops. Up to 1100 square feet of space overlooking busy main street will be finished to suit tenant. Other tenants include M.D.'s Clinic. For details please write to: Dr. Bruce Dovey, Aspen Medical Centre, 429 Tranquille Road, Kamloops, B.C. V2B 3G9.

BRITISH COLUMBIA — Revelstoke. Young dentist in humanistic family dental practice seeks third partner or associate. Office is modern, spacious and fully equipped. Town offers many year-round recreational opportunities, and requires services of more dentists. Reply to CDA Box Number 1801.

ALBERTA. Dentist required in expanding Alberta rural community that has tremendous potential. Situated at the southern tip of oil corridor. Exceptional sports facilities and excellent hunting area. Contact: Hardisty and District Chamber of Commerce, Hardisty, Alta.

ALBERTA — Grande Prairie. Hygienist wanted for modern 3 dentist office in beautiful city of 18,000. All kinds of recreation in the city and area. Salary or commission if preferred. Separate operatory and opportunity to practice all areas of training. Contact: Dr. H.J. Quinn, 9923A - 100 Avenue, Grande Prairie, Alta. Phone (403) 532-3520 or (403) 532-5165.

ALBERTA — Hanna. Dentist required immediately for new Medical-Dental Clinic in Hanna, a growing town. Over 800 sq. ft. of working space available for rent or purchase. Combined receptionist and waiting room area. Population to be served, approximately 14,000. Apply Box 700, Hanna, Alta. T0J 1P0.

MANITOBA — Winnipeg. Oral surgeon certified to practise in Manitoba required for a busy practice. Object, partnership. Please submit qualifications and curriculum vitae and recent photograph. Reply to CDA Box Number 1791.

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas. Locations are available throughout Ontario. Incentive grants, payable over four years, are $18,000 in Northern Ontario, and $14,000 in Southern Ontario. Alternatively, a guarantee net professional income of $28,000 per annum is offered in Northern Ontario. A limited number of salaried positions are open on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 7 Overlea Blvd., Toronto, Ont., M4H 1A9 or phone: (416) 965-5036.

ONTARIO. Experienced young dentist wishes two to three month locum, possibly on a continuing basis, while dentist is on course or vacations. Reply to CDA Box Number 1799.

ONTARIO — Glifford. Dentist wanted for individual practice in new facilities at Glifford and Community Medical Centre. Apply to: Arthur C. Oehm, Box 159, Glifford, Ont., N0G 1M0 or telephone (519) 327-8397, evenings (519) 327-8307.

ONTARIO — Rockland. Dental Hygienist wanted. Bilingual, ambitious and friendly hygienist required for new dental practice in Rockland, (20 miles East of Ottawa). Modern office in renovated home with 2 operatories at present. Permanent employment plus good salary guaranteed. Applications accepted immediately. Contact: Dr. M. Guay, Box 279, Rockland, Ont. Phone: (613) 446-5148.

QUEBEC — Terrebonne. Je cherche dentiste pour travailler à mon bureau 2 jours par semaine — 2 Bureaux bien organisés, secrétaire, assistante, hygiéniste, cavitron, etc, etc. Etabli depuis 30 ans. Gros chiffre d'affaire. Possibilité d'acheter. Appeler Dr. G. Moro, Terrebonne, Qué. (514) 471-3231 ou 471-8519.

OPPORTUNITIES WANTED

HYGIENIST BILINGUE cherche emploi à Montréal, été seulement. Serait prête à faire replacement assistante ou hygiéniste en vacances. Réponse ADC Casier 1804, ou téléphoner à (604) 685-5581.

YOUNG DENTIST, graduated five years, wishes to associate in general practice in the vicinity of Toronto. Graduated in the U.K., holds NDEB certificate. Salaried post would also be acceptable. Reply to CDA Box Number 1798.

DENTAL SURGEON, young, experienced, (B.D.S., U. Lond.) registered in British Columbia, looking for locum from June 6 - July 31, 1978 or any period during these dates in the province of British Columbia, preferably around Vancouver area. Anything considered. Reply to CDA Box Number 1802.

MANITOBA. General Dental Practitioner, aged 37, Senior Principal in own practice in Scotland, and a successful candidate in the March 1978 Manitoba Licensure Examination, seeks practice opportunity. Visiting Manitoba July 19-31 inclusive. Reply to: Dr. Alan D. Ross, 2/4 Murray Street, Annan, Dumfriesshire, Scotland.

QUEBEC — Montréal. Dentiste cherche à travailler avec dentiste établi au Québec. Prière écrire C.P. 123, Ahuntsic, Montréal, P.Q. H3L 3N7.

EQUIPMENT

WANTED: Used Dental X-Ray, preferably Siemens. Call collect: Dr. J. Easton (604) 922-5544.

MISCELLANEOUS

RELAX AND ENJOY — Fly-in-fishing at Washahigan Lake Lodge. Located 40 miles east of Norway House in Manitoba's beautiful wilderness. Terrific fishing, fine hospitality, clean, comfortable accommodations. Ask about our outcamps. Contact: Vern Guttman, Box 41, Hartney, Manitoba. Phone: (204) 858-2710.

WOODTURNING — Are you interested in woodturning as a hobby? Take a two day intensive course for beginners from a qualified teacher. Cut wood the way it prefers to be cut. For further information write to Post Office Box 171, Brampton, Ontario L6V 2L1.

VACATIONAL RENTAL

FLORIDA — Hollywood. To Rent: Cottage, three bedrooms; weekly or monthly. Phone: Montreal (514) 849-3511.

FLORIDE — Hollywood. A louer, maison, trois chambres à coucher; au mois ou à la semaine. Tél: Montréal (514) 849-3511.

The Province of British Columbia

DENTAL HYGIENISTS

The Community Health Programs, Ministry of Health, offers excellent opportunities at VARIOUS LOCATIONS for career-minded hygienists to participate in community educational, motivational and preventive pre-school and school dental programs. Duties include teaching in classrooms, conducting dental inspections, compiling statistical data, providing necessary follow-up services and performing other duties as a team leader in area concerned.

Qualifications — A recognized university diploma in dental hygiene or equivalent and preferably some experience subsequent to graduation. May be required to drive own car, on mileage, or a government car, as a condition of employment.

Salary — $1,325-$1,517 plus travel/uniform allowances and other fringe benefits.

Information from Division of Dental Health Services, Ministry of Health, Victoria, B.C.

Quote Competition 78:1088-22

Closing Location — Victoria Closing Date — IMMEDIATELY

Positions are open to both men and women.
Obtain and return applications at address below, unless otherwise indicated.

Province of British Columbia
Public Service Commission
544 Michigan Street, Victoria, B.C. V8V 1S3

Canadore College

P.O. Box 5001
North Bay, Ontario
P1B 8K9

DENTIST (FULL-TIME)

To teach in the dental hygiene and assistant programs in a modern 11 chair clinic at the College.

Qualifications: Licensed as a Dentist by the Royal College of Dental Surgeons or eligible to apply for same; previous teaching experience preferred but not essential.

Salary will be commensurate with qualifications and experience. There is a generous benefit plan package including two months vacation.

Duties will commence August 15, 1978.

Applications, resumes or inquiries should be directed to the Personnel Officer, Canadore College, Box 5001, North Bay, Ontario P1B 8K9

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UNIVERSITY OF ALBERTA
Faculty of Dentistry

Notice of Vacancy

Dental Materials

The Division of Dental Materials, University of Alberta, Faculty of Dentistry has an opening for a full-time academic person. Salary and rank are negotiable depending on background and experience. Duties will include undergraduate and graduate teaching, with research and dental materials evaluation encouraged.

Qualifications should include graduate training in dental materials science or a complementing field. Clinical dental training is desirable although not essential. The University of Alberta offers equal opportunity for employment to qualified male and female candidates.

Please submit inquiries with curriculum vitae to:

The Chairman
Department of Oral Biology
Faculty of Dentistry
University of Alberta
Edmonton, Alberta
T6G 2N8

CANADIAN DENTAL ASSOCIATION

NATIONAL CONVENTION
CONGRÈS NATIONAL

L'ASSOCIATION DENTAIRE CANADIENNE

WINNIPEG, MANITOBA

REGISTRATION FORM

For ADVANCE REGISTRATION and DISCOUNT return this form with appropriate fees BEFORE AUGUST 10, 1978 to

1978 CDA Convention Committee
308 Kennedy Street, Winnipeg, Manitoba
Canada R3B 2M6

Please use TYPEWRITER or BLOCK LETTERS

Surname ..... Preferred First Name ..... Prof./Dr./Mr./Mrs./Miss/Ms.

Address .....

Hotel Reservation Form returned ☐ Yes ☐ No Accommodation required ☐ Yes ☐ No

Additional Registrations (No fee for spouse or family members):

Spouse ..... Family Member(s) .....
Preferred First Name

REGISTRATION FEE ENTITLES DENTISTS AND AUXILIARIES TO ATTEND:

- Sunday evening welcome reception (Spouse Welcome)
- * Luncheons on Monday, Tuesday, Wednesday
- Tuesday evening social (Spouse Welcome)

* Tickets for spouse may be purchased at Registration Desk.

MEMBERSHIP REGISTRATIONS (Auxiliary Registration — see below) **FEES**

CDA Members and Foreign Dentists: $110. BEFORE or $130. AFTER August 10, 1978 ..... $ _____

Canadian Non-CDA Members: $135. BEFORE or $155. AFTER August 10, 1978 ..... $ _____

PRESIDENT'S BALL
Monday, September 11, 1978 — $25. per person ..... $ _____

LADIES PROGRAM:

- Sunday Evening Welcome Reception
- Monday Luncheon: Ethnic food & museum tour
- Tuesday Luncheon and Fashion Show
- Tuesday Evening Social
- Wednesday Brunch and Browse

} $35. ..... $ _____

Babysitting Required Yes ☐ No ☐ Interested in Tours? Yes ☐ No ☐

AUXILIARY REGISTRATIONS:

CDHA Members: $70. BEFORE or $90. AFTER August 10, 1978 ..... $ _____

Non-CDHA Members: $140. BEFORE or $160. AFTER August 10, 1978 ..... $ _____

CDNAA Members: $70. BEFORE or $90. AFTER August 10, 1978 ..... $ _____

TOTAL FEES $ _____

Enclose Cheques or Money Order payable to 1978 CDA CONVENTION

CANCELLATION: Money refunded ONLY if cancelled prior to August 10, 1978.

Signature ..... Date .....

CANADIAN DENTAL ASSOCIATION

NATIONAL CONVENTION
CONGRÈS NATIONAL

L'ASSOCIATION DENTAIRE CANADIENNE

WINNIPEG, MANITOBA

BULLETIN D'INSCRIPTION

Pour profiter du RABAIS de la PRÉ-INSCRIPTION, retournez ce formulaire avec le paiement exact AVANT LE 10 AOÛT 1978, à:

Veuillez DACTYLOGRAPHIER ou UTILISER des LETTRES MAJUSCULES.

1978 CDA Convention Committee
308 Kennedy Street
Winnipeg, Manitoba
Canada R3B 2M6

Nom ..... prénom ..... Prof./Dr./M./Mme./Mlle./Ms.

Adresse .....

124 ED...
TORONTO 2

Formulaire de réservation de chambres d'hôtel retourné: ☐ Oui ☐ Non Logement demandé: ☐ Oui ☐ Non

Inscriptions supplémentaires (Gratuites pour le conjoint et autres membres de la famille.)

Epoux(se) ..... (prénom) Membre(s) de la famille .....

L'INSCRIPTION PERMET AUX DENTISTES ET AUXILIAIRES D'ASSISTER:

- à la soirée d'accueil du dimanche soir (epoux(ses) bienvenus(es))
- * aux déjeuners des lundi, mardi et mercredi
- à la soirée intime du mardi, (epoux(ses) bienvenus(es))

* Les billets pour epoux(ses) peuvent être obtenus au bureau d'inscription.

INSCRIPTION DES MEMBRES (inscription des auxiliaires voir ci-dessous.) **DROITS**

MEMBRES de l'ADC et dentistes NON-CANADIENS: $110. avant ou $130. après le 10 août 1978 ..... $ _____

Membres non-ADC: $135. avant ou $155. après le 10 août 1978 ..... $ _____

LE BAL DU PRESIDENT
Lundi, le 11 septembre 1978 — $25. par personne ..... $ _____

PROGRAMME DES DAMES:

- Soirée d'accueil - dimanche
- Mets de divers pays et visites de musées - lundi
- Défilé de mode et déjeuner - mardi
- Soirée intime - mardi
- Déjeuner à fourchette; loisir d'examiner et de feuilleter la documentation - mercredi .. $35. .... $ _____

Désirez-vous participer à des visites guidées: oui ☐ non ☐

Avez-vous besoin d'une gardienne d'enfants? oui ☐ non ☐

INSCRIPTION POUR AUXILIAIRES:

Membres de la CDHA, $70. AVANT ou $90. APRES le 10 août 1978 ..... $ _____

Non-membres de la CDHA, $140. AVANT ou $160. APRES le 10 août 1978 ..... $ _____

Membres de la CDNAA, $70. AVANT ou $90. APRES le 10 août 1978 ..... $ _____

MONTANT TOTAL $ _____

Joindre au formulaire les chèques ou mandats établis à l'ordre de: LE CONGRES ADC 1978

CLAUSE D'ANNULATION: Remboursement seulement à ceux qui annuleront avant le 10 août 1978.

Signature ..... Date .....

CANADIAN DENTAL ASSOCIATION

NATIONAL CONVENTION
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L'ASSOCIATION DENTAIRE CANADIENNE

PARTICIPATE in '78

WINNIPEG, MANITOBA

HOTEL RESERVATION FORM

Return BEFORE AUGUST 10, 1978 to:
1978 CDA Convention Committee
308 Kennedy Street, Winnipeg, Manitoba
Canada R3B 2M6

Please use typewriter or Block Letters

Room will be occupied by:

Name .....

Street .....

City ..... Prov..... Postal Code.....

DENTAL LIBRARY
124 EDWARD ST.
TORONTO 2

Group Affiliation:

☐ DENTIST ☐ DENTAL HYGIENIST
☐ DENTAL ASSISTANT

Additional Occupants .....

.....

☐ Date Arriving ..... A.M. P.M. .....

Please guarantee my reservation ☐ Yes ☐ No

Date Departing ..... A.M. P.M. .....

For room reservations please list 3 hotels in order of preference.

1st .....

2nd .....

3rd .....

Please enter my reservations at the above hotel for:

SINGLE	TWIN	DOUBLE
☐@$.....	☐@$.....	☐@$.....

1 BDRM. SUITES	2 BDRM. SUITES
☐@$.....	☐@$.....

If the rate requested is not available, the next highest will be assigned.

Please **DO NOT** SEND YOUR REQUEST DIRECTLY TO THE HOTEL. It will only DELAY your confirmation. Please allow two to three weeks to receive confirmation.

DEADLINE FOR MAKING ADVANCE RESERVATIONS IS AUGUST 10, 1978

HOTEL	Single	Twin/ Double	1 Bdrm. Suite
*A. Holiday Inn	35.00	45.00	75.00
B. Winnipeg Inn	38.00	44.00	90.00
C. North Star Inn	34.00	40.00	60.00-70.00
D. Hotel Fort Garry	32.00	40.00	70.00-75.00
E. Delta Marlborough Inn	28.00	32.00	1 Bdrm. 80.00 2 Bdrm. 100.00
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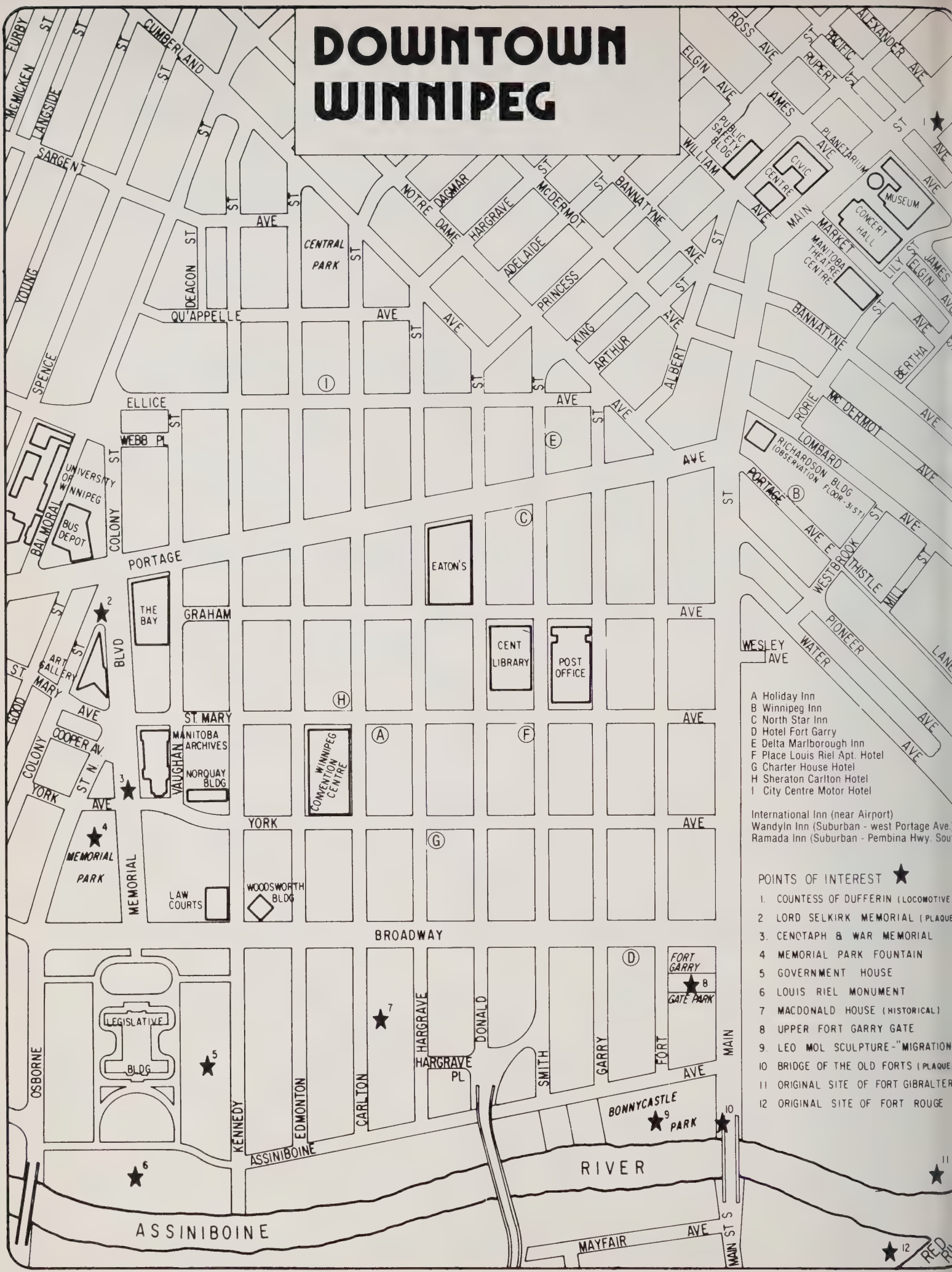
SEE REVERSE SIDE FOR HOTEL LOCATIONS & HEADQUARTERS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Canadian Dental Association/Association Dentaire Canadienne

DA National Convention
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Convention Issue '78

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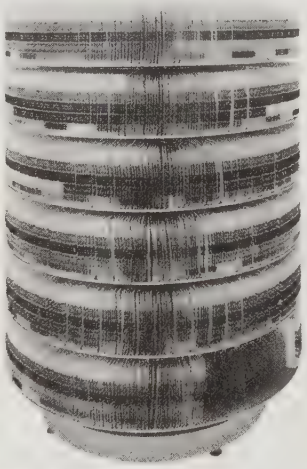

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†Beiswanger, B.B., *et al.*: J. Dent. Child. *45*:137, 1978.

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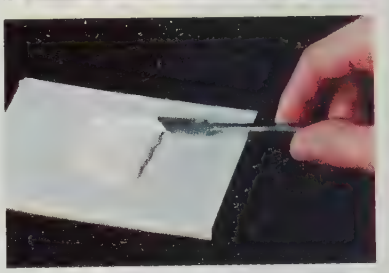

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REFERENCES: 1. Mizrahi, E., and Smith, D. C. Direct cementation of orthodontic brackets to dental enamel. Brit. D. J. *127*:371, Oct. 21, 1969. 2. Guide to Dental Materials and Devices, 8th Edition, p. 146, 1976. 3. Smith, D. C. A new dental cement. Brit. D. J. *124*:381, Nov. 5, 1968. 4. Klötzer, W. T., and others. Polycarboxylatzemente im physikalischen und biologischen. Test Deutch. Zahnaerztl. Z. *25*:877, Sept. 1970.

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JOURNAL

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de l'Association Dentaire Canadienne
July/August 1978/Volume 44/No. 7

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Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13. Contact: Dr. Ralph Crawford, Convention Chairman, Manitoba Dental Association, 308 Kennedy Street, Winnipeg, R3B 2M6

Canadian Meetings

Canadian Society of Oral Surgeons, Scientific Workshop and Meeting, Winnipeg, September 8-11, 1978. Contact: Dr. Colin Foster, 521 - 233 Kennedy Street, Winnipeg, Manitoba R3C 3S5.

Canadian Dental Hygienists' Association Annual Convention, Winnipeg, Manitoba, September 8-13, 1978. Contact: Diane Girardin, Convention Chairman 1978, Box 22, LaSalle, Manitoba R6G 1B0.

Canadian Academy of Endodontics, 1978 Annual Meeting, Winnipeg, Manitoba, September 9-10, 1978. Contact: Dr. William Christie, 506 Medical Arts Building, 233 Kennedy Street, Winnipeg, Manitoba R3C 3J5.

Canadian Academy of Oral Radiology, 1978 Annual Meeting, Winnipeg, Manitoba, September 10, 1978. Contact: Dr. C. G. Baker, Head, Section of Radiology, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Ave., Winnipeg; or, Dr. C. E. Hawrish, 5064 Dentistry Pharmacy Centre, University of Alberta, Edmonton.

International College of Dentists, Canadian Section, Dinner and Convocation, The Winnipeg Inn, Winnipeg, September 10, 1978. Board of Regents Meeting, The Winnipeg Inn, September 11, 1978, at 9.00 a.m. Contact: Dr. W. J. Spence, Registrar, 3000 Yonge St., Suite B-1, Toronto, Ont. M4N 2K5

Canadian Association of Orthodontists, Annual Meeting, Holiday Inn/Convention Centre Complex, Winnipeg, September 11-13, 1978. Contact: Dr. M.L. Drosdewich, 605 - 225 Vaughan Street, Winnipeg, Manitoba; or, Dr. J.J. Schachter, Box 952, Saskatoon, Saskatchewan S7K 4H7.

Pacific Coast Society of Orthodontists, 1978 Convention, Hyatt Regency Hotel, Vancouver, British Columbia, October 1-5, 1978. Contact: Dr. J. G. Ryan, #1330 - 925 West Georgia Street, Vancouver, British Columbia V6C 1R5.

Third Canadian Congress of Dentistry for Children, Vancouver, April 6-8, 1979. Contact: Dr. G. M. Jinks, Suite 301, 1701 West Broadway, Vancouver, British Columbia V6J 1Y3.

Les Journées Dentaires du Québec, Queen Elizabeth Hotel, Montreal, May 27 - June 1, 1979. Contact: Dr. M. R. Lang, 5171 Decarie Blvd., Montreal, Quebec H3W 3C2.

International Meetings

New Zealand Dental Association, 9th Biennial Conference, Christchurch, August 21-24, 1978. Contact: H. G. Knowles, Honorary Secretary, NZDA Biennial Conference Committee, P.O. Box 1301, Christchurch, New Zealand.

11th International Congress of Nutrition, Rio de Janeiro, Brazil, August 22 - September 1, 1978. Contact: Dr. J. A. Campbell, Treasurer, International Union of Nutritional Sciences, 1785 Riverside Drive, Suite 2204, Ottawa, Ontario K1G 3T6.

International Association for the Study of Pain, Satellite Symposium, Geneva Park Conference Centre, Longford Mills, Ontario, Canada, August 25-27, 1978. Theme: ''Mechanisms and treatment of dental pain''. Contact: Dr. R. Dubner, National Institute of Dental Research, Building 30, Room B-18, National Institutes of Health, Bethesda, Maryland 20014, U.S.A.

European Meeting of Oral Pathology, Amsterdam, August 29 - September 1, 1978. An advanced course in clinical and histological oral pathology. Contact: Miss R. Mooijen, Department of Oral Pathology, Free University, De Boelelaan 1117, Amsterdam, the Netherlands.

International Association on Dentistry for the Handicapped, 4th International Congress, London, England, September 12-15, 1978. Contact: Conference Office, 4th ICDH, Dental School and Hospital, University of Birmingham, St. Chad's Queensway, Birmingham B4 6NN, England.

North Dakota Invitational Conference on Health Science Education, Grand Forks, North Dakota, September 20-21, 1978. Theme: ''Evaluation in Health Science Education''. Contact: Office of Medicine Education and Evaluation, UND School of Medicine, 501 Columbia Road, Room 121, Grand Forks, North Dakota 58202.

Sixth International Conference on Endodontics, School of Dental Medicine, University of Pennsylvania, Philadelphia, September 21-24, 1978. Theme: ''Mechanisms and control of pain''. Contact: Dr. Louis Grossman, University of Pennsylvania School of Dental Medicine, 4001 Spruce Street, Philadelphia, Pennsylvania 19104.

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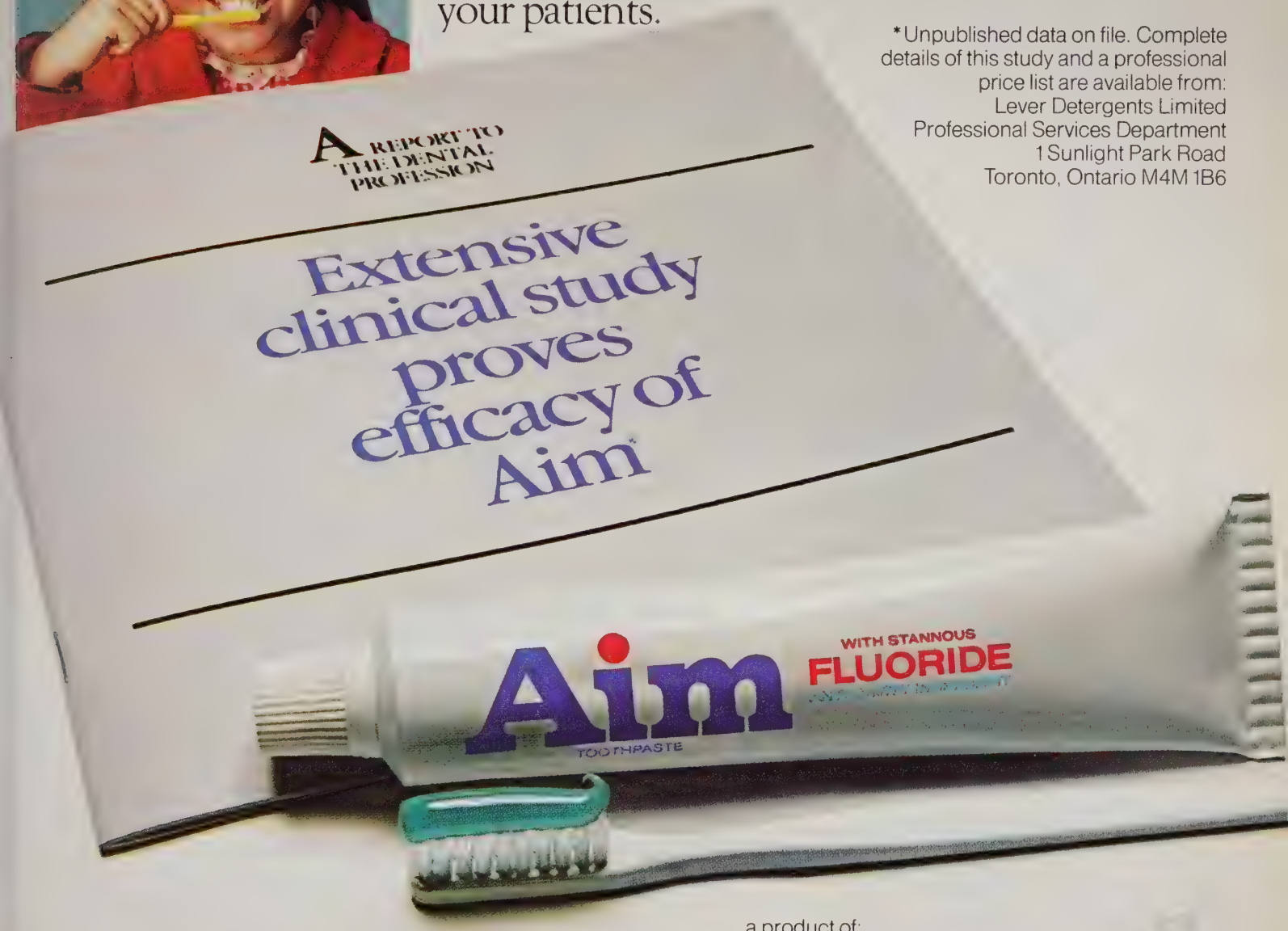

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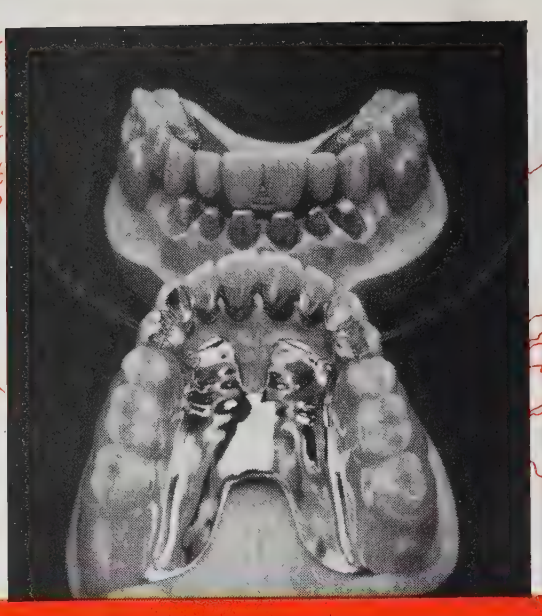

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European Association for Maxillo-Facial Surgery, 4th Congress, Venice, Italy, September 25-30, 1978. Contact: Maxillo-Facial and Stomatology Department, "S. Bortolo" Regional Hospital, 36100 Vicenza, Italy.

Fédération Dentaire Internationale, 66th Annual World Dental Congress, Madrid, Spain, September 25-30, 1978. Contact: Lawson, McKay Tours Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9. Telephone: (416) 364-0622.

American Academy of Periodontology, 64th Annual Session, Phoenix Civic Plaza, Phoenix, Arizona, September 27-30, 1978. Contact: American Academy of Periodontology, 211 East Chicago Avenue, Room 924, Chicago, Illinois 60611.

International Symposium on Recent Advances in Clinical Periodontology, Tel-Aviv University Dental School, Israel, October, 1978. Contact: Dr. Hart Levine, 2006 Bathurst St., Toronto, Ontario M5P 3L1. Tel. (416) 781-2006.

American Institute of Oral Biology, 35th Anniversary Meeting, Spa Hotel, Palm Springs, California, October 6-10, 1978. Contact: Executive Secretary, American Institute of Oral Biology, P.O. Box 481, South Laguna, California 92677.

Society for Clinical and Experimental Hypnosis, 30th Annual Meeting, Grove Park Inn, Asheville, North Carolina, October 17-22, 1978. Contact: Dr. Shirley Sanders, SCEH Convention 1978, Office of Continuing Education, University of North Carolina, 236 MacNider 202H, Chapel Hill, N.C. 27514.

Second International Prosthodontic Congress, Las Vegas Hilton Hotel, Las Vegas, Nevada, October 19-21, 1978. Contact: American Prosthodontic Society, 919 North Michigan Avenue, Suite 2108, Chicago, Illinois 60611.

American Dental Association, 119th Annual Session, Anaheim, California, October 22-26, 1978. Theme: "Dentistry's Mission: Pursuit of Excellence". Contact: American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

International Congress on Hospital Dentistry, New York City, November 29 - December 3, 1978. Contact: R. P. Hylton Jr., School of Dentistry, University of Minnesota Health Sciences Unit A, Suite 7174, Minneapolis 55455.

Asian Pacific Dental Federation, 9th Dental Congress, Merlin Hotel, Kuala Lumpur, Malaysia, April 23-27, 1979. Contact: Dr. Lim Chee Shin, P.O. Box 234, Petaling Jaya Selangor, Malaysia.

Society for the Advancement of Anaesthesia in Dentistry, International Congress on Sedation, Anaesthesia and Analgesia in Dentistry, Royal Lancaster Hotel, London, England, July 13-16, 1979.

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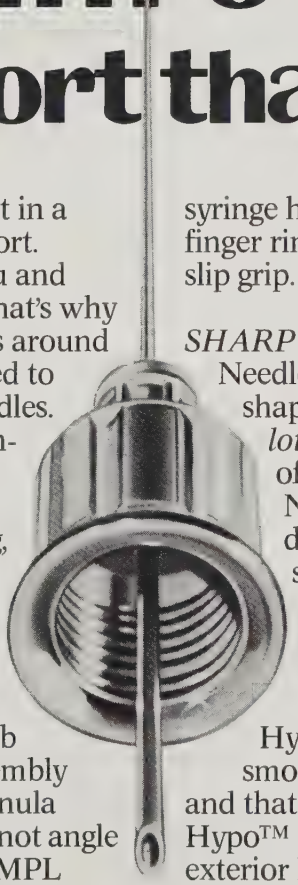

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EDITORIAL

FULFILLMENT:

There is an ancient parable that tells of three water pitchers, similar in all respects except as to their purpose, goals and fulfillment.

The first water pitcher hung on a hook in the back porch unnoticed by most passers-by. It remained empty throughout the years, having nothing to give to the world around. The second water pitcher had fallen into a running brook at the end of the garden. It remained full of water every minute and was quite visible to all; but it was out of reach and really served no one. The third pitcher hung on a nail beside a pump in the backyard. It was readily available. It would be filled with clear fresh water and be emptied to relieve a thirst. Only being emptied and replenished did it really serve mankind.

So, too, our lives in dentistry. There is a constant requirement for our dental well being that we be replenished at the well of knowledge — that we dispense that knowledge to the world around us and return to the well again and again so that we neither live empty and unnoticed or feel so full of knowledge that we serve no one.

The Convention is one of the vehicles that helps to give the dentist the fulfillment he requires so he may better serve his patients in this rapidly changing technical-socio-economic world. Since the founding meeting of the Canadian Dental Association held in Toronto in September 1902, dentists have recognized the requirement for national unity and for organized scientific advancement. In all credit to our forebears, 344 dentists, or 19 per cent of the total 1902 dental population, travelled from as far away as the North West Territories for the privilege and necessity of attending a Convention.

During the intervening 76 years of Conventions, no doubt their organized formats have varied and changed as much as the locales wherein the Conventions have been held, but unquestionably the framework of ideals and goals has been constant — advancement and fulfillment within national unity. To this end the 1978 Winnipeg Convention has been preparing for the last two years.

In 1902 Dr. Eudore Dubeau, Secretary of the Quebec Dental Association, wrote to every Canadian dentist an invitation to attend the founding meeting. . . .

''every dentist who can rise above mere local or provincial affairs in our country, and has thought about the immense advantages to be gained by the nationalization of the dental profession, should unhesitatingly give the idea his support''

Should the year 1978 be any different? The National Convention is the annual unification of the dental politic in Canada. As Dr. Dubeau's plea of rising above mere local or provincial affairs was valid in '02 so be it in '78. The dates of Saturday and Sunday, September 9th and 10th have been set aside for the CDA Board of Governor's meeting and, as an integral portion of the Convention, dentists are encouraged to attend, that national unity may be fulfilled.

Recognizing the rapidly expanding nature of dental knowledge and the intricacies of conducting practices, this year's Convention, more so perhaps than past Conventions, will strive to involve the whole community of dentistry. The dentist's dependance upon, and the utilization of, the dental auxiliary has brought about a realization to the Winnipeg Committee that practice management, with all its technical-economic problems, will be the backbone of the scientific sessions. If the dental needs of Canadians are to be met successfully, Canadian dentists will require all the organizational skills available.

If dental knowledge itself has expanded, so too has the role of dental equipment and consumable supplies. The National Convention again plays an important role in bringing to the dentist the latest in technical advancement. The ''trade show'', with its commercial sponsorship, gives the dental community the opportunity of surveying and deliberating what technical advancement best assists in serving patient requirements. With the great financial investments and technical adjuncts that are required today, the commercial exhibits truly fulfill a role.

No convention — 1902, down through the years, and today in 1978 — would be complete without its social involvements. Man, by his very nature, is a social creature and the recognition of past acquaintances and classmates, the meeting of new friends, the opportunity of informal conversations, are other aspects of Convention importance and fulfillment.

Inevitably, each dentist has to determine his own involvement and vehicle of attainment. He alone decides his role: Is his dental life empty, unrewarding and ''hanging on a hook'', really not attaining his true capacity? Is one's career, once filled with potential and purpose, virtually unchanged in the stream of life? Or is the dentist to choose a life of gathering knowledge and dispensing care . . . a process of being filled and emptied . . . a returning to the well of life? Fulfillment is Life in all its meaning. The National Convention can aid that fulfillment. Participate in '78!

Dr. Ralph Crawford,
Convention Chairman

Colgate's MFP... It's like making house calls.

entists agree that dental care should not end when the atient leaves the office. Recommending Colgate*with MFP* uoride helps extend your professional care to the source of ıe cavity problem; the patient at home.

Colgate's fluoride is an especially effective in-home cavity ghter. We believe that its active ingredient, sodium mono-uorophosphate (MFP), reacts with the tooth's surface layer f apatite (calcium hydroxyphosphate) to form fluoroapatite a calcium fluorophosphate).

hus the tooth is made more esistant to decay.

Clinical tests have shown ıat the regular use of olgate with MFP fluoride significantly reduces the incidence of caries. Thus, the use of Colgate in conjunction with your fluoride applications and regular dental treatments should result in an even greater reduction in the number of cavities.

And it's good to know that the staining of teeth which can be a problem with stannous fluoride is not a problem with Colgate's MFP. Remind your patients how important it is to back up your treatments with the kind of protection that Colgate's MFP fluoride provides. With Colgate, your professional care does not have to end when your patients go home.

"Colgate with MFP has been shown to be an effective decay-preventive dentifrice that can be of significant value when used in a conscientiously applied program of oral hygiene and regular professional care."
Canadian Dental Association

*T.M.

Colgate-Palmolive Canada

"PARTICIPEZ EN '78"
THEME DU CONGRES NATIONAL DE L'ADC

"Participez en '78": voici le thème du Congrès national 1978 de l'Association dentaire canadienne qui aura lieu à Winnipeg du 10 au 13 septembre. Ce thème se reflètera pendant les quatre jours du Congrès, au cours du stimulant programme scientifique qui compte un nombre de conférenciers de renommée internationale aussi bien qu'au cours de l'excitant calendrier d'événements mondains.

Le Congrès sera inauguré dimanche 10 septembre au Centre des congrès de Winnipeg, lors d'un cocktail qui précédera les cérémonies officielles d'inauguration qui auront lieu à 20h. Les cérémonies seront suivies d'un "festival folklorique" une soirée de divertissements, de danses et de délices gastronomiques des quatre coins du monde, conçue en vue de démontrer aux visiteurs la mosaïque ethnique de Winnipeg. Winnipeg, ville très fière de son héritage multi-culturel, promouvoit activement la préservation des anciennes traditions et des mets traditionnels à l'aide d'un folklorama annuel "ethnic-fest" d'une semaine. Cette soirée amicale et sans cérémonie permettra aux délégués de s'assembler dans une atmosphère détendue qui favorisera les retrouvailles ainsi que la création de nouvelles relations.

L'inauguration officielle de l'exposition scientifique aura également lieu dimanche à 17h au Hall "B" du Centre des congrès de Winnipeg.

Le programme scientifique sera lancé lundi matin et continuera jusqu'à mercredi après-midi. Le bal de gala du Président, tradition du Congrès, aura lieu lundi soir: dîner gastronomique ainsi que l'occasion de danser aux sons de l'Orchestre Duke Ellington (sous la baguette de Mercer Ellington) dont nous n'avons pas besoin de vanter la réputation.

La clôture du programme mondain aura lieu mardi soir et aucun détail de cette soirée ne sera révélé d'avance. En 1970, lors du dernier Congrès de l'ADC à Winnipeg, cette soirée de clôture comprenait un barbecue en plein air pour 1200 personnes, deux orchestres, un "Biergarten" et les délégués parlent encore de cette soirée! Le comité du programme mondain nous affirme que ce n'est rien à côté de ce que l'on présentera en 1978!

Plusieurs groupes de spécialistes tiendront leur assemblée annuelle conjointement au Congrès national de l'ADC; il s'agit notamment de l'Académie canadienne de pédodontie; de l'Association canadienne des orthodontistes; de la Société canadienne des chirurgiens buccaux; du Collège royal des dentistes du Canada; de l'Association canadienne des hygiénistes dentaires; de l'Association canadienne des infirmières et des assistantes dentaires.

"Participez en 1978". Faites-le vraiment! Inscrivez le Congrès sur votre calendrier, aux 10, 11, 12 & 13 septembre. Afin de faciliter les choses, il y a à l'arrière de ce numéro du Journal des formules d'inscription ainsi que de réservation d'hôtel.

Le droit de pratique décerné aux gradués de l'Université Laval

Le 12 juin dernier, l'Ordre des dentistes de la province de Québec décernait le droit de pratique aux gradués de l'Ecole de médecine dentaire de l'Université Laval.

Les docteurs Paul Simard, directeur de l'Ecole, Charles Gosselin, Guy Lamarche de l'O.D.Q. et Ralph Barolet, coordinateur de la cérémonie, ont accueilli chacun des gradués au podium.

Dans son allocution, le docteur Simard a réaffirmé l'intérêt des gouvernements à amorcer la phase II qui permettra de recevoir plus de candidats dans les prochaines années. En 1978, quatorze reçoivent le doctorat. L'an prochain, ce nombre passera à environ vingt-quatre. La phase II permettra une cinquantaine de gradués. C'est une progression prudente grâce à laquelle la direction peut continuer de présenter à la population des cliniciens de qualité et dignes de la profession.

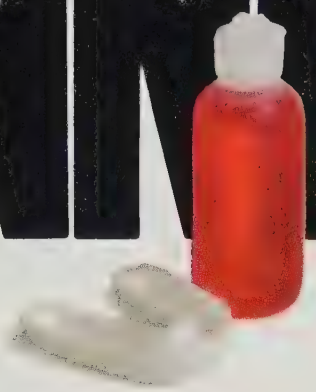
Le Dr Charles Gosselin, président de l'O.D.Q. a chaleureusement félicité les gradués. Il leur a rappelé que le permis de pratique impliquait des privilèges mais aussi des devoirs envers la profession et la population. L'O.D.Q. ne se veut pas un organisme punitif mais au point de vue statut, il est un prolongement du gouvernement et, à ce titre, il demeure un organisme protecteur des droits de tous les individus.

Au nom de ses confrères, le Dr Lynda Nicholson qui a, par ailleurs, raflé une partie importante des honneurs individuels, a prononcé le serment d'office. Un vin d'honneur, gracieuseté de l'O.D.Q., a réuni ensuite les parents et professeurs des nouveaux gradués.

C'est connu: une

BONNE

façon de réduire la carie est l'application professionnelle de fluorure.



Mais il a été aussi prouvé qu'il y a une

MEILLEURE

façon de réduire la carie: l'application professionnelle de fluorure et l'emploi de Crest.

Crest...le seul dentifrice dont l'efficacité a été prouvée en utilisation conjointe avec l'application professionnelle de fluorure.

La dernière recherche clinique† de Crest a prouvé qu'avec l'application professionnelle de fluorure de phosphate acidulé (FPA) l'emploi de Crest apporte une protection accrue contre la carie. En effet, cette étude démontre qu'un groupe de patients recevant une application professionnelle de FPA et se brossant les dents avec Crest réduit de 19% son indice de CAO-S (cariée, absente, obturée—surface) en comparaison avec le groupe recevant une application professionnelle de FPA et se brossant les dents avec un dentifrice placebo.

Par ailleurs cinq études antérieures avaient prouvé l'avantage accru de l'emploi de Crest avec l'application de fluorure stanneux (SnF_2). La réduction de l'augmentation de l'indice CAO-S par l'emploi de Crest en plus de la prophylaxie et du topique SnF_2 s'échelonne entre 48% et 71%.

Pour de plus amples renseignements sur ces recherches ou n'importe lesquelles des vingt et une études cliniques avec Crest, veuillez communiquer avec Crest division des services spécialisés, C.P. 355, Succursale "A", Toronto, Ontario M5W 1C5.

†Beiswanger, B.B., *et al.*: J. Dent. Child. *45*:137, 1978.

L'ASSOCIATION DENTAIRE CANADIENNE RECONNU

"Crest s'est révélé un dentifrice préventif contre la carie dentaire et son emploi peut avoir une valeur importante lorsqu'on l'utilise dans le cadre d'un programme d'hygiène buccale, exécuté avec application et de soins dentaires professionnels réguliers." — L'Association dentaire canadienne

Même s'il y a plusieurs dentifrices fluorés seul Crest a prouvé son efficacité spécifique lorsqu'employé conjointement avec les traitements professionnels au fluorure.

1978 PROCTER & GAMBLE. TORONTO

CAR-309

LE DR PAUL SIMARD S'ADRESSE AUX GRADUES DE L'UNIVERSITE LAVAL

Texte du discours du dr. Paul Simard, directeur de l'Ecole de médecine dentaire de l'Université Laval, à la cérémonie de la graduation — promotion 1978

C'est avec grand bonheur que nous, les professeurs et directeur de l'Ecole de médecine dentaire de l'Université Laval, constatons la présence aussi nombreuse de parents et amis des finissants d'hier, qui deviendront dans quelques instants nos confrères.

La cérémonie d'aujourd'hui inscrit une étape marquante à la fois pour l'Ecole de médecine dentaire, la profession dentaire, la société québécoise et surtout, il va de soi, pour les nouveaux diplômés ainsi que leurs parents et amis.

L'Ecole procède aujourd'hui à sa 4e graduation, évènement qui écrit un chapître important de sa jeune histoire. La mise en place d'une faculté de médecine dentaire qui englobe la conception et l'application d'un programme, le recrutement d'un corps professoral, professionnel, d'appui et son rôdage, la construction d'un bâtiment et la préparation de la phase II, l'élaboration d'un plan de développement pour les années à venir présentent un défi grisant par son ampleur et par la diversité de ses composantes mais aussi très difficile à relever en vertu de sa complexité. Ces années difficiles de toute grande entreprise à ses débuts, nous les avons vécues ensemble, étudiants, personnel d'appui et professionnel, professeurs et administrateurs, non sans difficulté mais avec un effort de compréhension mutuelle et un acharnement au travail qui ont porté des fruits. Il ne nous appartient pas de faire la panégyrique de l'Ecole et de son produit fini que sont les diplômés. Très conscients des imperfections, des lacunes mêmes de l'Ecole et de son programme, nous sommes très sensibles au témoignage des assesseurs de l'Ordre qui reconnaissent la haute qualité de nos diplômés, de même aussi qu'à celui du grand nombre de gradués des 3 premières promotions qui attestent que leur formation académique les préparent adéquatement à l'exercice de la médecine dentaire. Cette affirmation sera confirmée par l'Association dentaire canadienne qui sous peu octroiera à l'Ecole le statut d'approbation intégrale, ce qui fait que le programme de l'Ecole de médecine dentaire de l'Université Laval sera officiellement reconnu par toute l'Amérique du Nord.

La profession s'enrichit aujourd'hui de 14 membres qui, nous en avons la ferme conviction, lui feront honneur et desserviront pour la plupart des secteurs de la population québécoise la plus dépourvus de services dentaires. Ce nouvel apport, qui sera suivi d'autres vagues annuelles de dentistes de première valeur, qui graduellement assureront des services à toute la population québécoise, contribuera à convaincre davantage les autorités gouvernementales que la meilleure qualité de soins ne peut être assurée que par la profession dentaire et non par des succédanés comme les infirmières dentaires de la Saskatchewan, et ce . . . à une condition qui relève des dentistes eux-mêmes, soit celle de donner préséance, non pas à l'aspect pécuniaire de leur exercice, mais bien au maintien et à l'amélioration de la santé bucco-dentaire et partant générale de la population. Le reste viendra par surcroît.

Chers nouveaux confrères, vous constatez sans doute aux propos tenus plus haut que nous sommes fiers de vous. Et même si je veux éviter de tomber dans le paternalisme, j'ajouterai: Nous avons l'espoir — la conviction même — que vous ne serez pas l'objet de déception tant pour la profession que pour l'Ecole de médecine dentaire de Laval. . . . Au moment de votre départ, j'ai un regret personnel à vous exprimer, soit celui de n'avoir pas réussi à me tenir plus près de vous. Les excuses valent ce qu'elles valent. A ma décharge, je dirai cependant que si j'étais cloîtré dans mon bureau, c'était pour travailler au mieux-être de l'Ecole et par conséquent des étudiants.

A ce moment-ci, je désire m'adresser tout particulièrement aux parents et amis de nos gradués. L'on a tendance à attribuer à ses seuls mérites l'obtention d'un diplôme universitaire. Et là je ne parle pas des gradués de ce jour en particulier mais bien des diplômés en général tant d'hier que d'aujourd'hui. Nous oublions trop facilement que si nous sommes parvenus avec succès au terme d'études universitaires, il s'est trouvé et se trouve encore sur notre route des personnes, père, mère, ami(e) qui par leur apport soit pécuniaire ou moral — et surtout moral — ou les deux à la fois, ont contribué grandement au succès de nos études. Et je tiens à rendre à ces personnes qui ont oeuvré à l'arrière-plan un vibrant hommage.

Si je ne veux pas adopter une attitude parternaliste, je ne tiens pas davantage à ce qu'elle soit moralisatrice. Je me remets tout de même de rappeler à nos nouveaux confrères — sans insister parce qu'ils en sont conscients — la reconnaissance qu'ils doivent à la société. Si l'on songe que les frais de scolarité ne représentent qu'environ un quarantième (1/40) du coût de leurs études universitaires, l'on comprendra que, comme nous, ils doivent beaucoup à cette société qui a consacré des fonds très élevés pour assurer leur formation académique. Reconnaissance à laquelle s'ajoutent des responsabilités dont nous entretiendra le président de l'Ordre.

Nouveaux confrères, vous nous quittez aujourd'hui, mais je souhaite que ce ne soit pas sans retour et que vous reviendrez à l'école lors de visites d'amitié ou à l'occasion de journées d'étude dans le cadre de l'éducation permanente. Ce champ d'activité, fort complexe, devrait connaître des développements dans les années à ve-

nir. Il est plus que souhaitable — c'est même impérieux — que les facultés dentaires offrent à leurs diplômés des cours annuels d'appoint qui leur permettent dès le début et tout au long de leur carrière de se tenir au fait des dernières données de la science. Et je ne doute pas que la collaboration entre l'Ordre et l'Ecole sera des plus étroite afin d'assurer la réalisation de cet objectif.

En terminant, je désire offrir mes remerciements les plus sentis à l'Ordre des dentistes du Québec pour la sollicitation indéfectible témoignée à notre institution, pour cette cérémonie organisée spécifiquement pour Laval ainsi que pour la réception qui suivra.

Au nom de toute l'équipe de l'Ecole de médecine dentaire de l'Université Laval, je désire présenter mes hommages aux parents et amis de nos finissants qui nous honorent de leur présence et souhaiter à nos récents diplômés une vie professionnelle et personnelle des plus fructueuses ainsi qu'une cordiale bienvenue à leur alma mater.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mai, 1978:

Fonds d'actions ordinaires	$31.462
Fonds à revenu fixe	$21.007
Fonds garanti	$14.648
Fonds de placement équilibré	$10.307

L'avoir total (valeur marchande) du régime s'élevait à $29,930,457.78.

Au 30 avril, 1978, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$30.399
Fonds à revenu fixe	$20.836
Fonds garanti	$14.555
Fonds de placement équilibré	$10.150

L'avoir total (valeur marchande) du régime s'élevait à $29,414,108.01.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

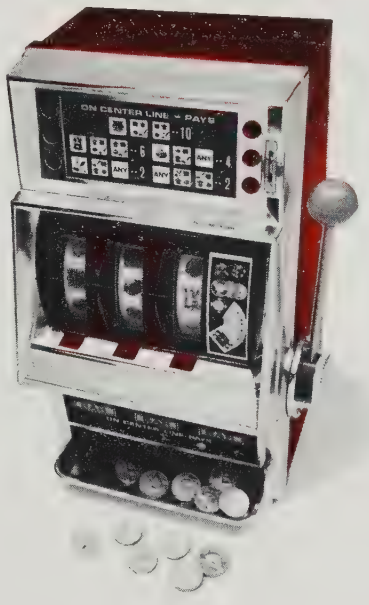
N'Attendez Pas. Inscrivez-Vous Dès Maintenant

Le Congrès national de l'Association dentaire canadienne aura lieu à Winnipeg, du 10 au 13 septembre 1978. Nous suggérons fortement que vous vous inscriviez à l'avance. Afin de vous faciliter les choses, il y a, à l'arrière de ce numéro, une formule d'inscription et de réservation d'hôtel. Remplissez-la et renvoyez-nous la accompagnée de votre chèque, dès aujourd'hui.

Soyez sûr

La prochaine fois que vous serez tenté de profiter d'une belle "aubaine" offerte par une maison de vente par correspondance, demandez-vous d'abord si cela vaut vraiment la peine de dédouaner les colis, de risquer des livraisons incomplètes ou des substitutions, des retours de marchandises, des réparations ou des livraisons en retard. Avec tout ça, on vous demande encore de payer au comptant. Caveat emptor...*que l'acheteur prenne garde!*

Mais ne vous découragez pas, Docteur. Vous avez des amis tout près qui pourvoiront à vos besoins professionnels. Des amis comme les membres du personnel de Denco...des spécialistes compétents et fournitures dentaires, qui peuvent vous offrir une gamme complète et toujours disponible de produits et d'équipements. Des amis sur lesquels vous pouvez compter, car ils vous fourniront tout ce qu'il vous faut, au moment où il vous le faut.



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So strong that crown and bridge castings can be thi
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Biobond C&B Alloy is easier to adjust than many
precious alloys, without special instruments. It polishes

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Lingual view of a finished case. Many patients prefer the beautiful luster and platinum hue of Biobond C&B Alloy. The alloy was specifically engineered for physical properties which make it easy to adjust and polish, without special instruments.

Labial view of a finished case. Note the vital appearance of the restoration, enhanced by the greater porcelain build up made possible by the thin, strong Biobond C&B Alloy casting. Although this pleasing restoration was created in Biobond® Porcelain, Biobond C&B Alloy is totally compatible with all leading porcelain brands.

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The 77th Annual Meeting and National Convention of the Canadian Dental Association will be held in Winnipeg, capital city of the Province of Manitoba. The Manitoba Dental Association will host this 1978 Convention.

CDA National Convention
September 10-13, 1978

WINNIPEG — CITY OF RIVERS

Winnipeg, capital city of the Province of Manitoba — a province of progress with a proud past and a promising future — was incorporated in 1873.

Bustling, growing, modern — Metropolitan Winnipeg, with a population of over 563,000 is situated at the confluence of the Red and Assiniboine Rivers, 60 miles north of the United States-Canada border, almost midway between the Atlantic and Pacific Oceans, and at the crossroads of Canada's commerce and travel.

At an altitude of 760 feet above sea level, Winnipeg is a large, modern, friendly city, economical for the shopper, exciting for the diner, friendly for the visitor, satisfying for the vacationer.

Grain, cattle, light manufacturing and transportation form the backbone of the City's commerce. Winnipeg's Grain Exchange is one of the leading grain centres of the world. The city's stockyards and freightyards are among the largest in North America.

Culturally, Winnipeg has attained equal stature, as home of the world renowned Royal Winnipeg Ballet, the Manitoba Theatre Centre, ranked by many as the top English-language repertory theatre in Canada, the Winnipeg Symphony Orchestra, justly noted in its field and the Western Manitoba Philharmonic Choir.

For people of all tastes — a new Art Gallery is located at 300 Memorial Boulevard. A cultural centre, which houses the Centennial Concert Hall, Planetarium and the Museum of Man and Nature is located in the heart of the city. Directly across the street from the cultural centre is the Civic Centre, housing the municipal government.

The city abounds with parks, including Memorial Park with its beautiful fountains, Assiniboine Park, with its famous zoo and charming English Garden, and Kildonan Park, home of the Rainbow Stage, where dramatic and musical shows are presented under a canopy of stars throughout the summer.

Tree-lined boulevards and well-kept lawns provide a perfect setting for the many beautiful homes and gardens in Winnipeg's residential areas, and many high rise apartment buildings break the skyline.

EXCITING SOCIAL PROGRAM WILL HIGHLIGHT 1978 CDA CONVENTION

An exciting social program will highlight the 77th Annual Meeting and National Convention of the Canadian Dental Association to be held in Winnipeg, September 10-13. The Manitoba Dental Association will host this 1978 Convention.

The social program will get underway Sunday, September 10, at the Winnipeg Convention Centre with cocktails preceding the official opening ceremonies at 8.00 p.m. The ceremonies will be followed by an "Ethnic Festival", an evening of entertainment, dancing and culinary delights from the four corners of the world designed to provide visitors with an introduction to Winnipeg's ethnic mosaic.

The President's Ball, a CDA convention tradition, will be held Monday evening and will feature gourmet dining, followed by dancing to the music of the internationally famous Duke Ellington Orchestra directed by Mercer Ellington.

The wind-up event of the social program will be held Tuesday evening and details are being kept under wraps. However, the social committee guarantees that this event will be one you won't soon forget.

If you haven't yet registered, do it now! Registration and Hotel reservation forms are included at the back of this issue.

LADIES' PROGRAM A MAJOR DRAWING CARD FOR CONVENTION

Plans are underway for a ladies' program that will excite and lure every dental wife to Winnipeg, where we intend to live up to our reputation for warmth and hospitality.

We will start you rolling with a Welcoming Party on Sunday evening that will be conducive to renewing old acquaintances, starting new friendships and get you in the mood for the exciting events to follow.

On Monday you will enjoy a Luncheon at our beautiful Concert Hall, and we will present a pleasant surprise in the form of entertainment. The Museum of Man and Nature which is located within this complex could be toured afterwards by those who wish, or you could be returned to your hotel to relax and prepare for the President's Ball that evening, an occasion which promises to compliment your finest gown.

On Tuesday, a luncheon at the Winnipeg Inn will lend itself elegantly to a Fashion Show that will put Paris to shame. Later on, a Social Evening will be held at the Convention Centre, with all disciplines of the profession participating.

And to crown it all, on Wednesday we will present "An Artistic Manitoba Morning", when you will brunch and browse and have an opportunity to mingle, muse and meet some talented Manitobans.

We have an exhuberant hospitality team to take care of your every personal dilemma — they will stitch your seam, curl your hair and wake you up with a cup of coffee.

Optional tours of a cultural and historical nature could be arranged for those who are interested.

So ladies, start making plans NOW to join us in Winnipeg on September 10, 1978!

Mrs. E. Mike, Chairperson

Many specialty groups will hold annual meetings in Winnipeg

A number of specialty groups will be holding their annual meetings in Winnipeg prior to, or in conjunction with, the CDA National Convention. These include: the Canadian Academy of Paedodontics; the Canadian Academy of Endodontics; the Canadian Association of Orthodontists; the Canadian Society of Oral Surgeons; the Royal College of Dentists of Canada; the International College of Dentists, Canadian Section; the Canadian Association of Restorative Dentistry; the Canadian Academy of Oral Radiology; the Canadian Dental Hygienists Association and the Canadian Dental Nurses and Assistants Association. In addition, the Canadian Forces Dental Services will hold a reception for members on Tuesday, September 12 at 4.00 p.m.

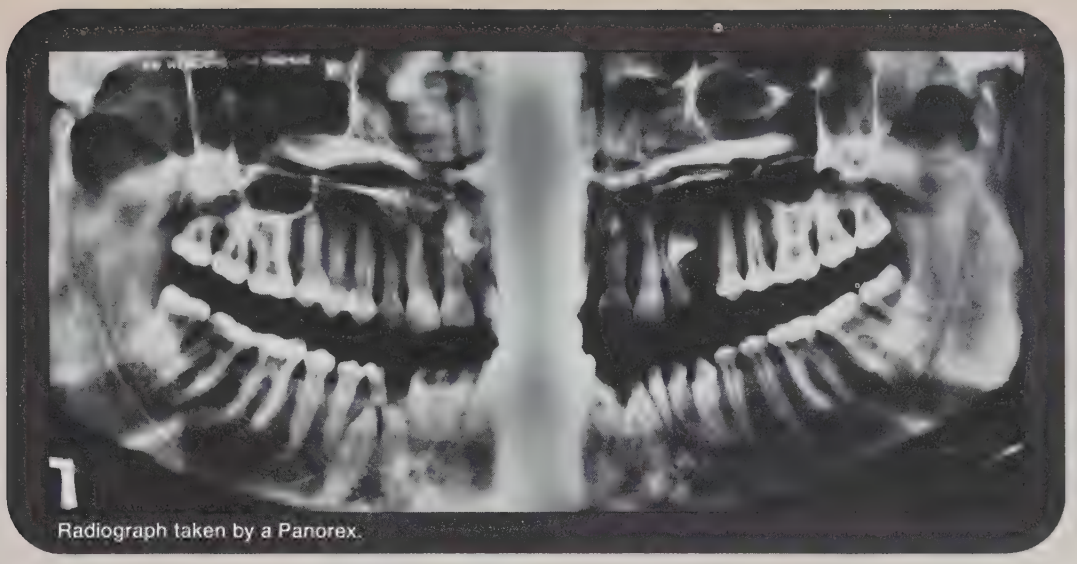
University Reunion

All former students and staff of the University of Manitoba are invited to attend a special reunion to be held Saturday, September 9, at the Fort Garry Hotel, Winnipeg. The reunion will get underway at 7.30 p.m.

International College Canadian Section

The International College of Dentists, Canadian Section, will hold its dinner and convocation on Sunday, September 10, 1978, in the Winnipeg Ballroom of the Winnipeg Inn, Winnipeg, Manitoba. A fellowship hour (no host), prior to the dinner, will begin at 6.30 p.m. Dress is formal.

The Canadian Section of the International College has also announced that its Board of Regents Meeting is scheduled for Monday, September 11, 1978, at 9.00 a.m. in the Royal Suite of the Winnipeg Inn.



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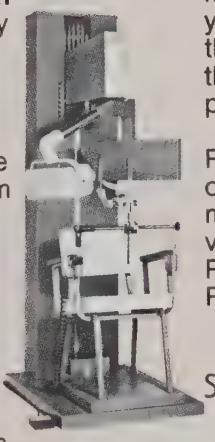

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JOINT PRESENTATION WILL FOCUS ON TREATMENT OF TRAUMATIC INJURY

Dr. Marshall D. Peikoff and Dr. William H. Christie will deal with treatment of traumatic injury in the young patient during their joint presentation.

Dr. Peikoff is assistant professor and head of the Endodontics Section of the University of Manitoba's Faculty of Dentistry. He is the author of several publications and has been extensively involved in presenting lectures and clinics throughout Canada and the United States. An honours graduate of the University of Manitoba and a Masters graduate of Boston University, Dr. Peikoff has been specializing in endodontics for the past 10 years in Winnipeg. He is an examiner of the National Dental Examining Board, a Fellow of the Royal College of Dentists of Canada and a Diplomate of the American Board of Endodontics.

Dr. Christie is in practice with Dr. Peikoff and is also associated with the University of Manitoba's Faculty of Dentistry. A graduate of the University of Manitoba, he received his Masters degree in dentistry from Ohio State University where he was a teaching assistant for two years. An internationally known lecturer and clinician, Dr. Christie served as editor of the Manitoba Dental Association Bulletin and has written articles for a number of dental publications. He is a member of the Canadian Academy of Endodontics and the American Association of Endodontists.

Dr. R.D. Haryett will present 1978 Grieve Memorial Lecture

"The interception of crowding in the anterior segments in the early mixed dentition" is the title of the 1978 Grieve Memorial Lecture which will be presented by Dr. Rowland D. Haryett.

Dr. Haryett received his Masters degree in dentistry from the University of Toronto and became a Fellow of the Royal College of Dentists a short time later. He joined the University of Alberta's Faculty of Dentistry and, during his stay, became chairman of the Department of Orthodontics and established a graduate program in orthodontics in 1970. In 1976, he served as President of the International College of Dentists.

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Toronto, Ontario
M4S 2C6

Advanced pedodontic restorative procedures

Delegates interested in advanced pedodontic restorative procedures will not want to miss the session presented by Dr. Walter A. Doyle. Dr. Doyle, the author of numerous articles which appear in current publications and textbooks, has made more than 300 presentations throughout the United States, Finland, Greece and Ireland. A graduate of Emory University School of Dentistry in Georgia, he received his Masters degree in pedodontics from Indiana University and his Masters in orthodontics from Boston University School of Dentistry. Although he has conducted a full-time practice in pedodontics in Lexington, Kentucky, for the past 15 years, he has an impressive teaching record at the Universities of Indiana, Kentucky, Boston and Northwestern. Dr. Doyle is currently president of the American Society of Dentistry for Children, a Fellow of the International College of Dentists and has held numerous high offices in state and national dental associations.

An in-depth study of practice management

Dr. Richard Klein and Dr. Ralph O'Connor are recognized as leading experts in the field of dental practice management and they will provide an in-depth look at this topic during the scientific program.

Both serve on the clinical faculty of the University of Washington School of Dentistry and their experience is drawn from several stages of practice: junior associate, solo, senior associate, and the five-man group practice in which they now practice.

Drs. Klein and O'Connor have presented their program at the University of Washington for 15 consecutive years, continually updating their course and continuing to draw large audiences. Many dentists and their staffs take the course several times to update ideas and further implement the many new concepts in their own practices.

CDA NATIONAL CONVENTION
CONGRES NATIONAL DE L'ADC

Winnipeg, September 10-13, 1978

Scientific Program

Monday, Sept. 11

8:30 – 10:30 Dr. Walter A. Doyle
Advanced Pedodontic Restorative Procedures in Children.

10:30 – 12:00 Dr. Rowland D. Haryett
Grieve Memorial Lecture
The Interception of Crowding in the Anterior Segments in the Early Mixed Dentition.

2:00 – 5:00 Dr. Marshall D. Peikoff and Dr. William H. Christie
Endodontics for the Young Patient – Treatment of Traumatic Injury.

Tuesday, Sept. 12

8:30 – 12:00 Dr. Richard Klein and Dr. Ralph O'Connor
Organization and Management of Modern Dental Practice – Part 1

2:00 – 5:00 Dr. Klein and Dr. O'Connor
Organization and Management – Part II

Scientific Movies and Video Presentations throughout the day in the Convention Centre Cinema.

Wednesday, Sept. 13

8:30 – 12:00 Dr. Klein and Dr. O'Connor
Organization and Management – Part III

2:00 – 5:00 Dr. Klein and Dr. O'Connor
Organization and Management – Part IV

Scientific Movies and Video Presentations throughout the day in the Convention Centre Cinema.

FLUORIDATION FREED FROM CANCER SCARE

Various groups and individuals opposed to fluoridation of public water supplies have gained wide publicity for their allegations concerning fluoridation and cancer mortality rates.

Competent scientists who specialize in detecting and measuring the effects of environmental factors on disease and mortality have conducted studies that show no difference in properly computed cancer mortality rates in making comparisons of fluoridated and non-fluoridated localities. Such studies have been reported by the National Cancer Institute and the National Heart, Lung and Blood Institute of the U.S. National Institutes of Health; the Center for Disease Control; the Safe Drinking Water Committee of the National Academy of Sciences; the Health Protection Branch of the Department of National Health and Welfare, Ottawa, Canada; the Royal College of Physicians, London, England, and the Royal Statistical Society, London.

The sum of their conclusions is that there are no trends in cancer mortality patterns in the United States, Canada, or England attributable to the consumption of water that is fluoridated either from natural sources or by addition of fluorides.

This leads one to believe that people have no more reason to fear cancer in places with fluoridation than in places without it.

Copies of the Canadian report *Fluoridation and Cancer* may be obtained (in English or French) from the Environmental Health Directorate, Tunney's Pasture, Ottawa K1A 0L2.

Lloyd H. Bowen,
CDA Fluoridation Officer

Acknowledgment in appreciation of assistance is made to Mr. John S. Small, National Institute of Dental Research, Bethesda, Maryland 20014.

Missing Person

Lynda Ardle, age 15 years, has been missing since September, 1977.

This patient had an appointment to have her bands removed on September 15, 1977. She failed to keep her appointment, a not unusual occurrence in her case. It is felt she may have sought the aid of a dentist or orthodontist, since her disappearance, to have the bands removed.

Orthodontic information: Lynda has the four 1st bicuspids extracted and was wearing a full .018 edgewise appliance with rectangular wires. She still had a Class II relationship of the posterior teeth but could and did assume a forward position when closing much of the time.

Anyone with information regarding this patient is requested to contact: Mr. Kenneth Ardle, c/o Mr. Stephens, 17 Leawood Court, St. Catharines, Ontario, or phone, (416) 728-3262.

ROYAL COLLEGE OF DENTISTS OF CANADA

Thursday, September 7, 1978.

9:00 a.m. **Annual Business Meeting** — Mezzanine Floor, Winnipeg Inn, Winnipeg. All Fellows and Fellows-Elect are welcome.

Friday, September 8, 1978.

8:30 a.m. to 12:30 p.m. **Scientific Session.** Mezzanine Floor, Winnipeg Inn, Winnipeg. **Treatment of Occlusal Disorders.** Speakers — Dr. C. L. B. Lavelle (Oral Biology), Dr. F. J. Hechter (Orthodontics), Dr. P. M. Jackin (Prosthodontics), Drs. D. Wedgwood, S. Kennett, M. E. Mickleborough (Oral Surgery).

Panal Discussion. 11:50 a.m. to 12:30 p.m.

2:00 p.m. to 4:00 p.m. **Convocation.** Mezzanine Floor, Winnipeg Inn.

6:00 p.m. to 7:00 p.m. Cocktails.

7:00 p.m. to 12:00 midnight. Dinner-Dance. Winnipeg Inn.

Don't wait. Register now

The Canadian Dental Association's National Convention will be held in Winnipeg, September 10-13, 1978. Early pre-registration is strongly recommended. For your convenience a registration and hotel reservation form is included at the back of this issue. Fill it out and return it, with your cheque, today.

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New 6th Edition! **Monheim's LOCAL ANESTHESIA AND PAIN CONTROL IN DENTAL PRACTICE.** By C. Richard Bennett, D.D.S., Ph.D.; with 3 contributors. January, 1978. 368 pp., 123 illus. **Price, $21.25.**

New 7th Edition! **Tylman's THEORY AND PRACTICE OF FIXED PROSTHODONTICS.** By Stanley D. Tylman, A.B., M.S., D.D.S., F.A.C.D. and William F. P. Malone, M.S., D.D.S., Ph.D., F.A.C.D.; with 3 consulting editors and 28 contributors. This new, completely reorganized 7th edition continues its reputation as the most complete reference available on crown and bridge. Chapters follow a logical sequence for preparing a prosthesis and describe various techniques step-by-step. In this edition, you'll find special emphasis on establishing a treatment plan, including preprosthodontic considerations such as periodontal diagnosis and treatment. August, 1978. Approx. 896 pp., 1,390 illus., with 2 color plates. **About $37.00.**

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DEATHS

Boyd, Andrew A., 80. Kingston, Ontario. Royal College of Dental Surgeons, 1923. 29-12-77.

Donnelly, William T., 82. Montreal, Quebec. McGill University, 1920. 24-1-78.

Gemeroy, Gilbert F., 64. Courtenay, British Columbia. University of Alberta, 1941. 1-4-78. Survived by Gladys (wife).

Grainger, Donald R., 29. Golden, British Columbia. University of Toronto, 1973. 13-6-78.

Kaplowitz, Harold J., 44. White Rock, British Columbia. University of Pennsylvania, 1957. 4-5-78. Survived by Linda (wife), David, Gary and Andrew (sons).

Killas, Kosta James, 54. Vancouver, British Columbia. University of Oregon, 1949. 18-5-78. Survived by Helen (wife), Kosta James Jr. (son), Janice-Ela and Daphne-Ann (daughters).

MacGregor, Archibald D., 81. Truro, Nova Scotia. McGill University, 1925. 8-6-78. Survived by wife, Helen.

McLellan, Frederic F., 87. Westville, Nova Scotia. Dalhousie University, 1915. 16-3-78.

Miller, Walter A., 80. Winnipeg, Manitoba. University of Toronto, 1923. 2-5-78. Survived by Ruth (wife) and Arroll (daughter).

Mitchell, Jonathan B., 28. Fort St. James, British Columbia. University of Oregon Dental School, 1976. 11-5-78.

Murdoch, Robert H., 79. Winnipeg, Manitoba. University of Toronto, 1923. 6-5-78. Survived by wife and son.

Stevens, Wesley D., 88. Westport, Ontario. University of Toronto, 1914. 10-5-78.

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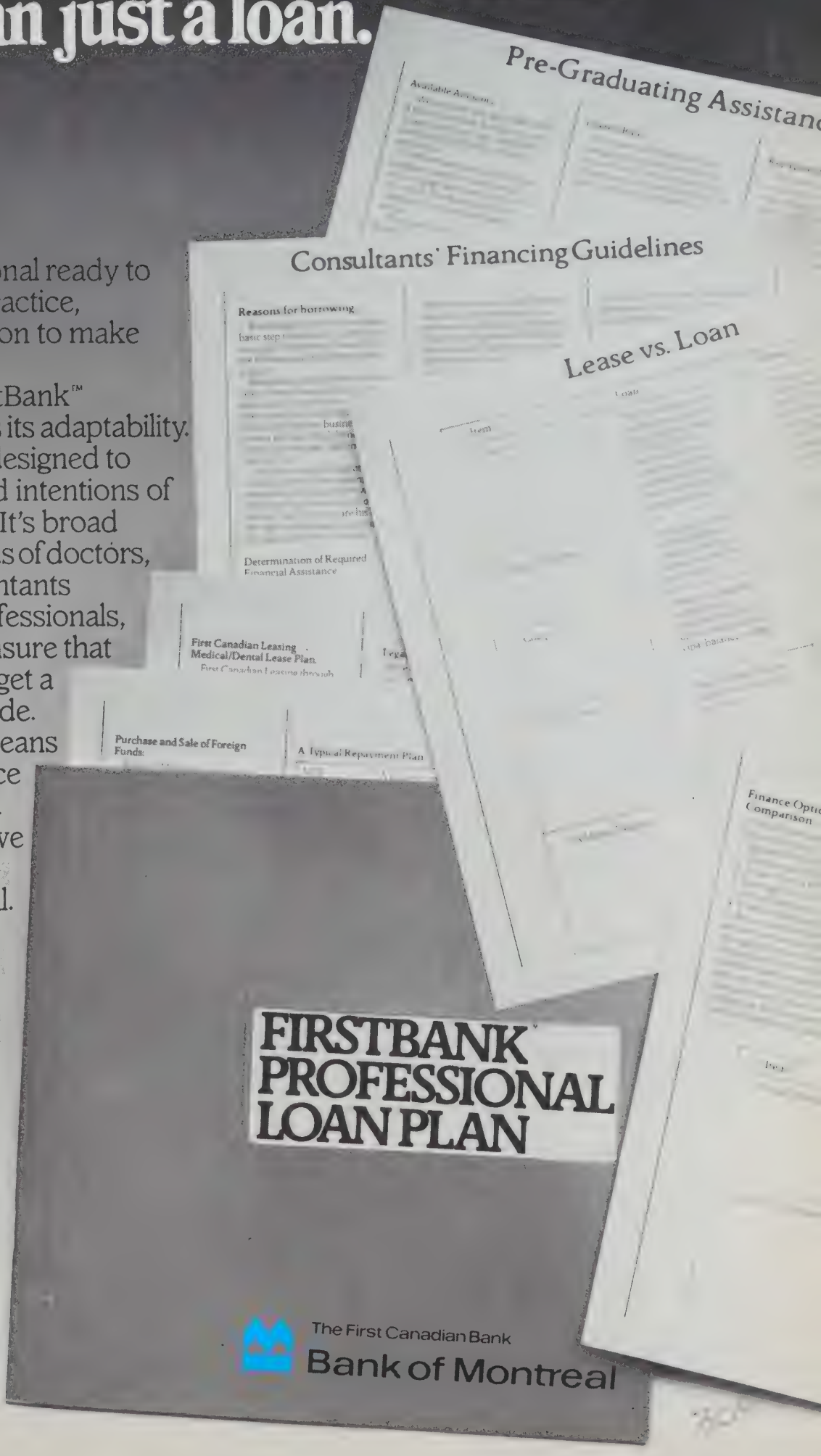

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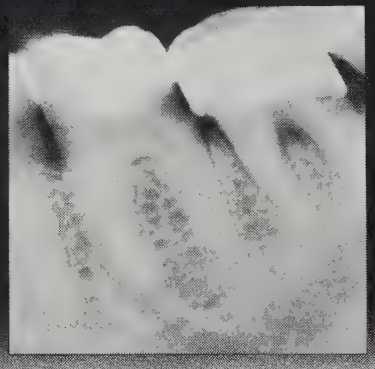

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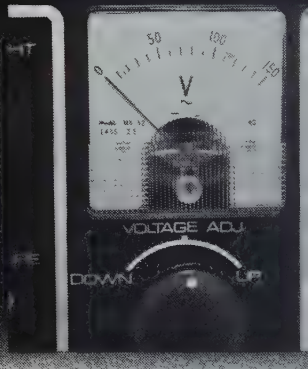

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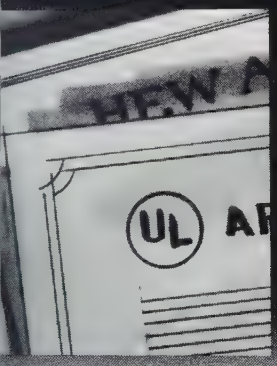

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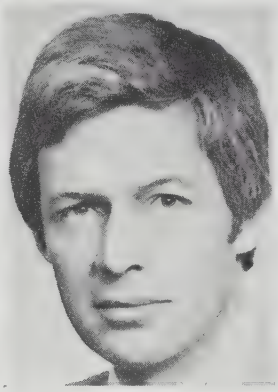
Dental Industry Association of Canada

Association Canadienne de l'Industrie Dentaire

ANNOUNCEMENT

The Dental Industry Association, made up of 67 manufacturers, dealer/suppliers and laboratories of Canada, held its inaugural meeting on May 17, 1978, to accept the new constitution and objectives of a trade association. These members formerly were the Canadian Association of Dental Exhibitors. The Association's offices will be located in Toronto. The following Executive Officers and Directors were elected:

President
Fred Heaps
Dentsply Canada



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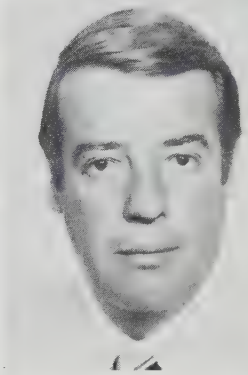

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Extract of Main Objectives of the Dental Industry Association of Canada

Dental Industry Association of Canada is an organization consisting of manufacturers, dealers/suppliers and technical service firms, providing and offering the highest possible degree of useful service to dentistry in Canada.

The Association is concerned with maintaining a close relationship with dental groups, societies and teaching institutions to provide exhibits, which will inform the dental profession of the latest developments in dental health care products.

THE ROLE OF SPIRAMYCIN IN THE TREATMENT OF PERIODONTAL DISEASE

Robert S. Turnbull, DDS, MScD
Gerald E. Pearson, DDS
Toronto

This article discusses the antibiotic spiramycin in regards to its effect on periodontal disease. The literature on past clinical evaluations is reviewed and some unique properties of the antibiotic emphasized.

The primary etiologic factor implicated in periodontal disease is dental plaque.[1] Thus, conventional periodontal therapy is aimed at long-term plaque reduction, however, this is dependent on a patient's motivation to maintain good oral hygiene. Surgical treatment does not always result in completely predictable results and therefore adjunctive methods of treating periodontal disease would be helpful. An antimicrobial agent that can eliminate or suppress organisms in plaque which are associated with clinical pathology would be an obvious choice.

Use of antibiotics in dentistry

In dentistry, antibiotics are used mainly to control infections and prevent bacteremia. However, some antibiotics do have an effect on dental caries and periodontal disease.

Penicillin

Penicillin will reliably prevent dental decay in animal models.[2] Some human studies have involved the use of a penicillin dentifrice and one study showed a 58 per cent reduction in caries increment after two years of treatment.[3] Systemic penicillin is also of value in helping to treat acute necrotic ulcerative gingivitis. The obvious problem is the risk of using an indispensable medical agent for these purposes.

Vancomycin

Mitchell and Holmes[4] applied 1 per cent vancomycin paste to the gingival surfaces of institutionalized mentally retarded individuals once daily for eight days. This resulted in gross plaque reduction and decreased gingivitis, but three weeks after adminsitration stopped, the plaque scores and gingivitis returned to pre-treatment levels. This led to the evaluation of vancomycin as a plaque inhibitor where no clinical disease was present. A double-blind cross-over study involving 30 volunteers showed that 1 per cent vancomycin ointment was not effective in preventing plaque accumulation.[5] Thus, it appears to be effective in treating active infection but not in prophylactically preventing plaque formation.

Kanamycin

Kanamycin is an antibiotic with a broad spectrum of activity. Loesche et al[6] evaluated a 5 per cent kanamycin-orabase paste and a placebo paste on institutionalized mentally retarded subjects who had moderate to severe gingivitis. The paste was applied three time daily for five days in the absence of any mechanical hygiene procedures. Twenty-four days after treatment, the kanamycin subjects had 57 per cent less plaque than the placebo-treated subjects. Bacteriological studies of the cultivable plaque flora showed that only the streptococci were reduced. *S. sanguis* and *S. mitis* accounted for 30 per cent of the flora before treatment but only 3 per cent four weeks later. However, at the end of eight weeks, the residual effect of the kanamycin was no longer apparent. Another investigation showed that periodic intensive topical kanamycin treatment in the absence of mechanical hygiene procedures offered some improvement to the oral health of institutionalized mentally retarded subjects.[7] In this study, the 5 per cent kanamycin paste did not completely eliminate the gingivitis and this is probably because the kanamycin could not enter the periodontal pocket.[8]

Spiramycin

Spiramycin is an antibiotic that was discovered in France in 1953 by Rhône-Poulenc Research Laboratories. Since then, various studies have appeared in the literature concerning its efficacy in treating periodontal disease.

Pharmacology

Spiramycin has the trade name Rovamycine and is manufactured by Poulenc Ltd. in Montreal. It is a macrolide antibiotic — erythromycin being the first of this group to be discovered. Macrolides have the same mechanisms of action and general antibacterial spectrum. It is active against gram-positive bacteria, particularly *Staphylococcus aureus,* beta-hemolytic streptococci and viridans streptococci. Gram-negative organisms, in general, are much less sensitive.[9] It is effective against *Streptococcus mutans* and *Actinomyces viscosus* which are considered potential pathogens in plaque formation and periodontal disease.[1]

Adverse effects may consist of nausea, vomiting, diarrhea and skin sensitization. As an aid in treating periodontal disease, the average adult dosage is 250 mg four times a day for five days. However, this dosage regimen varies with the condition being treated and the clinician's judgement.

Spiramycin is not widely used by the medical profession as there are other preferred drugs for medical conditions. This is advantageous as there is a reduced risk of large numbers of patients sensitive to the antibiotic or resistant organisms, and an indispensible medical agent is not being used for non life-threatening conditions.

Clinical trials and experimentation

Daligand[10] in 1958 reported results of a three year study of 90 periodontal patients treated with spiramycin for 20 days. He found that the majority were maintained in good condition. Harvey[11] performed the first Canadian studies on spiramycin in 1961. He prescribed it for approximately 70 cases of acute and subacute oral and periodontal infections. His clinical impression was that it appeared to be of value when used concurrently with local therapy in the more severe purulent type of case.

Gendron[12] conducted clinical trials on 300 patients with a wide variety of oral conditions, including marginal gingivitis, periodontal abscesses, necrotic ulcerative gingivitis and periodontitis. He administered spiramycin prior to any other form of treatment. Marked improvement was noted in the majority of cases. Winer, Cohen and Chauncey[13] compared the effect of spiramycin and a placebo on moderate to severe periodontal disease with and without treatment. More significant improvement occurred as a result of the administration of the antibiotic even when no local therapy was rendered.

Mills, Thompson and Beagrie[14] compared spiramycin, erythromycin and a placebo in regards to their efficacy in controlling periodontal disease. Forty-eight adult patients with varying degrees of periodontal disease were randomly assigned to one of three groups and administered either spiramycin, erythromycin or a placebo for five days. They were examined once a week for one month as a double-blind evaluation. The examination included a recording of the G-I index, plaque height measurement, pocket depths on all anterior teeth, crevice fluid meter readings from selected maxillary and mandibular teeth, and wet plaque weights from buccal surfaces of mandibular and palatal surfaces of maxillary posterior teeth. All recorded indices were compared longitudinally for each of the four weeks and between test groups. Throughout the experiment, no oral hygiene instruction or periodontal therapy were rendered. The results indicated a trend in favour of spiramycin in most of the parameters examined.

Other studies in the literature substantiate the beneficial effect of spiramycin on periodontal disease.[15-20] It has been prescribed in combination with metronidazole, an antibiotic used in the treatment of protozoal infections, particularly trichomoniasis. Metronidazole is also effective in treating acute necrotic ulcerative gingivitis.[21]

Lafleur, Mignon and Videau[22] reported on the effects of spiramycin and metronidazole in combination. This association produced effective concentrations in situ against aerobic bacteria, protozoals, spirochetes and above all — anaerobic bacteria. Pujo and Rojo[23] treated 100 cases of stomatological infections with spiramycin-metronidazole. Their results indicated that it was a clinically effective combination with good tolerance and little chance of sensitization.

Videau et al[24] found that with this combination of antibiotics, true synergism occurs and they seem to potentiate each other and have a much greater effect than individually.

Salivary and bone levels

Spiramycin has properties unique only to this antibiotic which render it effective in helping to treat periodontal disease. These include the fact that it is retained in the alveolar bone and concentrated in the salivary glands, thus allowing for localization of the drug at the site undergoing treatment. There is also prolonged excretion of the drug after administration has ceased. The following studies have demonstrated these facts.

Pellerat and Maillard[25] compared the salivary excretion of spiramycin, penicillin, demethylchlortetracycline, pristinamycin and erythromycin in humans. Spiramycin offered the highest and most prolonged levels in the saliva. Tsvetanova and Klein-Genova[26] experimented on rats which were administered spiramycin orally by means of a specially adapted tube every day for six consecutive days. Microbiological tests were done to determine the presence of the antibiotic in the bone and blood serum. They found that spiramycin was stored in high concentrations in the bone and was retained there from 22-26 days after administration had stopped. Serum levels did not follow the same general pattern as the bone level. The conclusion reached was that the retention and slow elimination of spiramycin by the alveolar bone play a role in the curative process of the inflammatory form of periodontitis. Leung et al[27] administered spiramycin to rats for 7 to 14 consecutive days. Plasma contained detectable spiramycin only up to 24 hours after the last dose. However, spiramycin remained in gingival tissues and alveolar bone for at least seven days after medication was terminated. Parotid and submaxillary

glands contained the antibiotic as long as 14 to 21 days. The authors conclude that these findings further substantiate the rationale for use of spiramycin in treating inflammatory processes of the periodontium.

Denks, Plagmann and Lange[28] studied the concentration of spiramycin in the gingival sulcus fluid. Two days after spiramycin therapy, samples of total saliva, venous blood and gingival exudate were taken from patients who displayed progressive marginal periodontitis. The results showed that the effective antibiotic concentrations did not reach the oral cavity exclusively by elimination via the major salivary glands but also through gingival pocket exudate. Samples of fluid from the gingival sulcus showed the highest concentration of spiramycin — 10 times as high as in saliva or venous blood.

Conclusions

Spiramycin is certainly not a panacea in the treatment of periodontal disease and does not replace orthodox treatment modalities. However, in view of the research evidence available, it is useful as an adjunct to local periodontal therapy.

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BARRIERS TO THE ESTABLISHMENT OF A REGULAR DENTAL PROGRAM FOR ELEMENTARY SCHOOLS

Gordon Mutter, PhD
Ottawa

This article is a follow-up evaluation by the author of a previous article published in the February 1976 issue of the Journal entitled ''Effects of Teacher Training''.

Background information

During the school year 1975-76, the ''American Dental Association Program of Oral Health'' was purchased and distributed to 57 elementary schools in the Ottawa-Carleton area.

In order to facilitate use of the program by elementary school teachers, half-day dental workshops were conducted by the health consultant and local dentists. Approximately two-thirds of all elementary school teachers and principals attended.

Program aims

The aim of the program was to offer continuous reinforcement of preventive techniques introduced annually by a hygienist from the Regional Health Unit. The basis of the program was prevention rather than rehabilitation, and a decrease in the amount of treatment required by students in the school system demonstrated the program's possible effectiveness.

Results

Based on completed questionnaires from 77 per cent of the elementary school principals, the results indicated that:

- 10 per cent of teachers used the program regularly
- 26 per cent used the program occasionally
- 61 per cent never used the program.

Along with the results of frequency of use, the survey included the reasons for not using the program as a regular part of the curriculum.

Replies were as follows:

- lack of time (35 per cent)
- considered this was not the teachers' responsibility (22 per cent)
- unaware of the program's existence (15 per cent)
- classroom brushing and flossing would be unhygienic (14 per cent)

Reasons stated as ''other'' included:

- low priority in teachers' philosophy of education
- adequate parental care
- unsuitable for grades seven and eight
- lack of interest
- unavailable in a French edition

Less than one per cent of the teachers using the program had a poor initial experience.

Interpretations of results

The two major reasons given for not using the program were lack of time (35 per cent) and ''not their responsibility'' (22 per cent). Both reasons could probably be attributed to the fact that health education has traditionally received a cursory look on the school time-table.

A lack of communication between administration and staff might explain why 15 per cent of the teachers were unaware of the existence of the program in their own schools.

The 14 per cent of respondents who stated that practising preventive skills in the classroom was unhygienic, no doubt had not attended the in-service training which covered such concerns.

It is encouraging to note that 99 per cent of the teachers who did try the dental program had positive results.

Discussion

The Ottawa-Carleton Regional District Health Unit conduct annual dental inspections in the elementary schools. Their 1976-77 survey revealed that the individual school percentages of pupils needing treatment ranged from 17 to 51 per cent. It is interesting to note that the school with the highest incidence of dental decay (51 per cent) is one of the many which has not seen fit to employ the dental program.

The schools regularly using the program had a lower incidence of dental decay compared with their statistics for previous years.

The teachers claim that the time required for a class to practise brushing and/or flossing need only be five to seven minutes daily, preferably during P.A. announcements or other ''inactive'' periods.

Continued on page 319

THE SELECTION OF THE MOST EFFICIENT RADIOGRAPHIC SURVEY FOR YOUNG ADULT PATIENTS

S. L. Kogon, DDS, MSc
R. G. Stephens, DDS, MSc
J. A. Reid, DDS, FAADR
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The standard intra-oral radiographic survey (16 film complete mouth series) is compared to the Panorex plus bitewings as diagnostic aids to the clinical examination of selected young adult patients. Results indicated that the Panorex plus bitewings is as useful and therefore more efficient in terms of radiation exposure as the complete intra-oral survey for a large proportion of the test group.

Levels of human exposure to ionizing radiation have increased significantly in this century, mostly as the direct result of x radiation used for diagnostic purposes.[1] While the contribution of dental radiographs to this increased dosage is relatively minor, concern about the undesirable biological effects of increased radiation exposure has been reflected in a report adopted as a statement of principle by the Federation Dentaire Internationale.[2] The FDI recommended that diagnostic radiography should be limited to instances where the dentist anticipates that the information he is likely to obtain will contribute materially to either diagnosis or prevention and the benefit will outweigh potential radiation injury. In developing a series of rules for dental radiographic practice, the first and undoubtedly the most important rule adopted by the FDI is that the dentist should "use professional judgement to determine the frequency and extent of each radiographic examination and to determine the number of film exposures justifiable in terms of the expected yield of diagnostic information."

In view of this, thoughtful assessment of current practices is required. In today's highly organized and efficient dental practice, whether private or institutional, it may be that routine too often replaces the essential feature of judgement. A complete mouth series (CMS) for new patients of all ages is common practice and in many instances is quite justified if professional judgement has been exercised prior to the event. However, there may be patients for whom such an extensive radiographic survey cannot be justified in terms of the information obtained.[3] Perhaps at the time of the initial clinical evaluation by the dentist, before the routine is in motion, the need for radiographs could and should be established and the extent of the coverage determined in terms of the number and type of films desired.

The increasing availability of panoramic x-ray generators has broadened the scope and flexibility of dental radiography, but has created problems in practising radiation thrift. Unfortunately, the panoramic film may become an additional part of the routine examination. Too often it is used as a "screening" film to be followed by the CMS. A recent study[4] in the United States examined the role of the panoramic film as such an adjunct to the CMS. In a group of 3,059 patients, only 0.1 per cent (3 cases) showed pathologic conditions in the panoramic film possibly requiring treatment. The authors concluded that the expectation of a high incidence of detection cannot be used to justify the routine use of the panoramic film as an adjunct to the CMS. It should be possible to evaluate patients, considering age and the clinical state of the hard and soft tissues (in terms of caries, existing restorations, periodontitis, malocclusion), so that an appropriate radiographic examination is prescribed. The number and type of radiographs taken would be determined by the judgement of the dentist, based on his clinical evaluation.

A number of radiographic comparisons between the panoramic film and the CMS have been reported. These have been reviewed by the authors in a previous study which compared the two types of surveys.[5] The panoramic film because of definite advantages[6] such as simplicity, convenience, area covered and relatively low patient dose, has merit but uncertainty remains about yield of diagnostic information when compared to the CMS as an aid to the diagnosis of common dental problems. The panoramic film even with supplemental bitewing films is inadequate for radiographic identification of anterior caries, although such a survey compares favourably with the CMS in other respects.[5,7] Whether the combination of a panoramic film plus bitewings would serve as the sole radiographic adjunct for certain patients undergoing a clinical examination, has not been adequately determined. In order to justify the radiation exposure, time and expense of a CMS in addition to the panoramic film plus BW's, it would be necessary to show that without the CMS, there is a significant omission of diagnostically useful information. The study reported here was designed to examine this question.

Method

Patients were selected from those seeking treatment at the Faculty of Dentistry, The University of Western Ontario. Each patient had to satisfy the following criteria:

1. Non-complicated medical history.
2. Between 15-26 years of age.
3. Absence of obvious periodontitis.
4. Absence of severe malocclusion.
5. Essentially complete dentition.
6. No extensive restorative or rehabilitative dentistry.
7. No appliances.
8. No history of jaw fracture or surgical procedure for oral pathosis.

A Panorex®,* CMS and BW's were taken for these patients. This is normal procedure for new patients accepted for treatment in the teaching clinics. An oral examination was completed on each patient. All clinical examinations were supervised by the same instructor (SLK). Forty-seven patients completed the entire diagnostic procedure.

The clinical examination included a medical history, extra- and intra-oral soft tissue examination, detailed examination of the dentition and periodontium and an occlusal assessment. Diagnostic aids such as vitality tests were done when necessary. An odontogram was prepared. A diagnosis, prognosis and treatment plan were established for each patient. Throughout this primary phase, the clinician had available the Panorex and BW films as the radiographic adjunct to the clinical examination. When supplemental periapical or extra-oral films would be of advantage in treatment planning, the request was recorded.

Shortly after the completion of the primary phase, the odontogram, diagnosis, prognosis and treatment plan were reviewed. However, at this secondary phase, the CMS was also available as a diagnostic aid. Any alterations, additions or deletions in the diagnosis and/or treatment plan were noted on specially designed forms so that the clinical implication could be evaluated. A treatment plan was then approved and recorded in the patient's charts.

Results

After using the Panorex + 4 BW's as the sole radiographic adjunct to the clinical examination, the additional value of the CMS was determined (Table 1). For 37 of the 47 patients no significant additional information was obtained from the CMS. In nine of the remaining 10 patients, additional anterior carious lesions were disclosed and in one patient only, additional information was acquired about both anterior and posterior caries. The analysis of the data pertaining to the additional anterior lesions appears in Table 2. Of the 29 additional anterior lesions disclosed by the CMS in nine of the 47 patients, 18 (62 per cent) had been identified clinically and were placed in the treatment plan. Seven of the remaining 11 carious lesions, which had not been disclosed clinically with the aid of the Panorex + BW radiographs, but reported on the CMS, were added to the treatment plan. For these patients, supplemental periapical radiographs were not requested by the clinician. Four of the 11 lesions were incipient and, although disclosed by the CMS, were not added to the treatment plan. The clinician requested additional periapical radiographs for 27 (57 per cent) patients. The usual reasons for additional radiographs were: evaluation of deep carious lesions and/or evidence of periapical pathology (13 patients), assistance in examination of anterior carious lesions (nine patients), a history of trauma (four patients) and presence of crowned teeth (one patient).

Value of CMS when used in addition to Panorex + BW's during clinical examination — Table 1

	Patients	
No value beyond BW + Panorex	37/47	79%
Additional anterior carious lesions	9/47	19%
Additional posterior carious lesions	2/47	4%*

*CMS revealed clinically important data in posterior and anterior quadrants in one case.

Anterior caries — Table 2

Lesions found on CMS only	Found clinically	Not found clinically
29	18/29	11*/29

*4 no treatment
7 treatments required

Discussion

The results suggest that for the great majority of patients in this study, the CMS did not provide significant additional information over that obtained by clinical examination using the Panorex plus bitewings as the radiographic adjunct. The inadequacy of the Panorex + BW's in the radiographic detection of anterior caries was clearly demonstrated in a previous study.[4] However, the clinical examination of anterior teeth was assumed, prior to this study, to be sufficiently discriminating to overcome this deficiency. The results shown in Table 2 support this assumption, for the most part. The fact that seven anterior lesions (although incipient) would have been overlooked even with careful clinical examination, indicates that an anterior bitewing (or one or two periapicals) may be required; although in patients with either open contacts or wide embrasures, a careful clinical examination should be sufficient. The results

*Panorex® S. S. White, Dental Products Division, Philadelphia, Pa. U.S.A.

support the principle proclaimed by the FDI that it is prudent to base the number and type of films employed on the clinical judgement of expected yield of diagnostic information. The patients examined in this study were young adults exhibiting minimal clinical evidence of major dental disease. It was assumed that the 16 periapical films of the CMS (exclusive of the BW's) would add little significant information to the treatment plan. In view of the results of this study, it would be difficult to justify the radiation expended for these additional films in terms of information obtained.

Conclusion

A number of studies, including a recent report by the authors, have attempted to define specific attributes of the panoramic radiographs which could justify its use in dental practice. It is evident from these studies and from an assessment of the film characteristics, that the panoramic film which lacks image sharpness is unsuited for identification of dental caries, initial periapical pathologic change or for certain procedures such as endodontics which employ serial radiographs. However, the extensive area covered (context) and the convenience of the technique suggest a role for this film in the radiographic examination of patients where the standard CMS is either difficult to perform, the size of the intra-oral film is a limiting factor, or there is little expectation of information yield. Young patients in the mixed dentition stage with clinically evident or potential orthodontic problems can be examined effectively by the panoramic film. For radiographic examination of the edentulous (or partially edentulous) patient the film gives excellent context and avoids the very real problems of film placement. In the young patient aged 14 to 28 years, where dental caries and third molar eruption difficulties are by far the most common dental findings, a combination of the panoramic film, to provide the coverage needed to view third molars, and bitewing films for caries are appropriate. The simplicity, convenience and lesser amounts of radiation compared with the CMS are advantageous. In this study, the only additional value of the CMS was the disclosure of incipient anterior carious lesions not found by clinical examination. It may well be that an anterior bitewing should be incorporated if this survey is used. Also, where there is a history of trauma or multiple restorations, supplemental periapical radiographs should be taken.

This study was devised to test the assumption that a panoramic film plus bitewings may be an acceptable radiographic adjunct to clinical examination for young adult patients without extensive dental disease. The results seem to support the concept and thus identify a specific indication for the use of this type of radiographic survey. There is justifiable concern that unless specific indications are identified, the potential of the panoramic device will be overlooked and the film used in a screening role prior to taking a CMS, as has too often been the case in the past. To use radiation in this type of screening examination (or for patient education as some promotional material suggests) would add to patient exposure and cost without an expectation of specific information yield.[4] This is difficult to justify in view of the efforts in the health sciences to reduce harmful exposure to ionizing radiation.

The authors wish to thank Mr. G. Dicasmirro, a senior dental student, for his able assistance in examination of the patients and the collection of data.

Dr. Kogon is associate professor and chairman of the Division of Oral Medicine; Dr. Stephens is a professor in the Division of Radiology; and Dr. Reid is associate professor and chairman of the Division of Radiology, Department of Oral Medicine, Faculty of Dentistry, The University of Western Ontario.

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Classroom dental program . . .

Continued from page 316

Conclusions and recommendations

It appears that there has not been a significant change in attitudes towards the teaching of health education in the schools. Students today and in the future will continue to be deprived of information and preventive skills until the teaching of health education becomes a priority with the policy makers in the educational systems.

A scheduled method of teaching dental health education as part of a total scheduled health education program would go a long way to increase the frequency of use of this and other similar health programs. By teaching health education on a regular basis and showing it on the student's report card as separate from physical education, students in the future could receive information and skills which would, hopefully, instill a more positive lifestyle than is evident today in many secondary school students.

Dr. Mutter is a health education consultant for the Ottawa Board of Education, 330 Gilmour Avenue, Ottawa, Ontario K2P 0P9.

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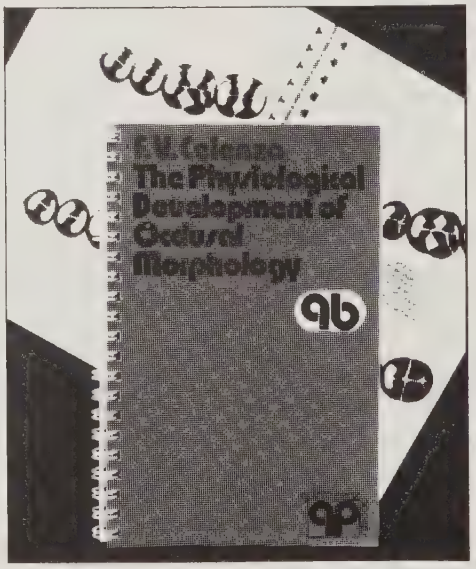

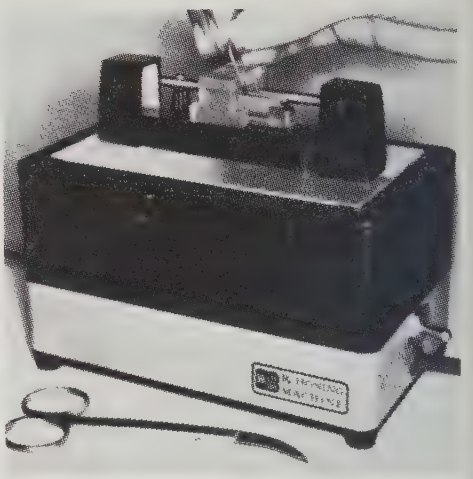

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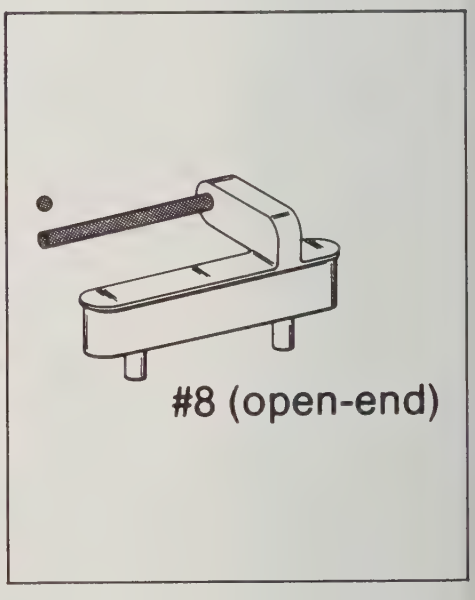

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OPINIONS AND PRACTICES OF AMERICAN ENDODONTIC DIPLOMATES

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A survey of opinions and practices of diplomates of the American Board of Endodontics was accomplished by means of a questionnaire sent to all 416 diplomates in the United States. A total response of 49.4 per cent revealed answer distribution variations both in age groups and geographic areas.

The purpose of the American Board of Endodontics as stated in the AAE Membership Roster "is to contribute to the advancement of endodontics by elevating the standards of endodontic practice within the dental profession through the certification of candidates" in the area of endodontics. Through the nature of its purpose, the opinions of diplomates of the American Board of Endodontics should represent a rational approach to endodontic patient care.

Previous surveys[2,3] of endodontic diplomates have provided valuable information; however, they have been somewhat limited in scope by providing insight to only a small facet of endodontic practice.

The purpose of this study was to conduct a multi-faceted survey of the opinions and practices of endodontic diplomates, in an attempt to determine the standards and character of practice of the group.

Methods and materials

The first problem in attempting such a survey is to keep the quantity of questions to a minimum without sacrificing the depth of the study. A multiple choice survey (Table 1) was designed, utilizing the felxibility of blank choices to supplement responses outside the scope of fixed answers.

The survey was accomplished by means of a questionnaire sent to all 423 endodontic diplomates listed in the AAE Membership Roster 1976,[1] in the United States. An unstamped, self-addressed envelope was provided to encourage return of the questionnaire.

Results

A total of 209 of the 423 diplomates (49.4 per cent) responded to the survey. Of the respondents, some provided multiple answers and others failed to respond to specific questions.

In the analysis of the survey, the responses were divided according to age groups and geographic areas. Twelve states were found to have no diplomates. The divisions by geographic area are those previously determined by the ADA for continuing education purposes,[4] and were designated as follows:

Group A — Arizona, California, Hawaii, Oregon, Utah, Washington
Group B — Iowa, Minnesota
Group C — Alabama, Florida, Georgia, Kentucky, Maryland, North Carolina, South Carolina, Tennessee, Virginia, West Virginia
Group D — Arkansas, Colorado, Kansas, Louisana, Missouri, New Mexico, Oklahoma, Texas
Group E — Connecticut, Delaware, Washington D.C., Massachusetts, New Jersey, New York, Pennsylvania, Rhode Island
Group F — Illinois, Indiana, Ohio, Michigan, Wisconsin.

Differences in opinions and practices were shown to be most pronounced between age groups, with the greatest differences corresponding to age (i.e. 30's vs. 60's). Diplomates above age 70 were represented by only six responses and, hence, for comparative purposes may not be significant.

Division by geographic area showed variations within the respective groups. Group B was represented by only one response and therefore cannot be taken to represent the area.

Discussion

For the sake of brevity, no in-depth discussion of results will be attempted. Only a review of the responses will be presented.

Literature evaluation

Ingle's text on endodontics was considered the best source of information on endodontics for the general practitioner. This finding was consistent with all representative age groups and geographic areas. Weine's text was a distant second place in all categories except in geographic Group A where Cohen and Burn's text was second.

The periodical considered the best source of endodontic information for the general practitioner by all groups was

the *Journal of Endodontics*. Second place in all categories was the *Journal of the American Dental Association*.

Endodontics in general practice

The question of the most frequent iatrogenic cause of pulp pathology demonstrated some variation existing between exposure and lack of base material. Overall percentages showed that exposure was felt to be first and lack of base material second in the opinion of the diplomates.

The aspect of endodontics considered weakest for general practitioners showed variation between access opening and anatomy (A) and cleaning and shaping (B). Overall percentages indicated that access opening and anatomy was first in importance, with cleaning and shaping of canals second.

Referrals

The purpose of this section was to determine a profile of the endodontic practice.

Twenty-five to 30 principal referring dentists was the most frequent response by all age groups and overall response, but with some variation when examined by geographic area.

Overall responses showed most referral cases to be mixed in nature, but mostly molars (E). There was some variation in both geographic areas and age groups between mixed areas, mostly molars (E) and all of the endodontic cases being referred (A).

Referrals came chiefly from general practitioners who have been in practice for 10 to 20 years; other specialists were a minor source.

Overall responses and distribution by age groups showed the respondents working four days per week. Variation by geographic area, however, demonstrated diplomates working between four and five days per week.

Treatment evaluation

Some variation was shown by age groups and geographic areas concerning preference for male or female patients. However, overall responses showed no preferences.

All age groups and geographic areas, with the exception of geographic area "F", showed preference for patients between the ages of 25 and 40.

All age groups and geographic areas with the exception of geographic area "F" showed a great majority of respondents not doing pulp capping procedures within their practices.

Concerning treatment of teeth previously treated with N-2, all categroies stated that inability to negotiate canals because of ledges and calcifications was the primary problem encountered.

In ranking areas of endodontics according to difficulty, diagnosis was considered most difficult with treatment of emergencies in second place.

All categories stated that they routinely used a shift-shot to help disclose any unusual canal morphology.

Endodontic preparation

Individuals in the younger age group showed a preference for flair filing, while older respondents used standard preparation. Variation between these two types of canal preparation was also shown by geographic areas. Overall, flair filing was most popular, with standard preparation a close second.

A fairly even distribution between all groups was shown for the use of 5.25 and 2.6 per cent sodium hypochlorite, with an overall slight edge going to 2.6 per cent.

All groups showed an overwhelming preference for K-type files.

Obturation

All groups demonstrated an overwhelming preference for gutta percha, because it was felt to offer a better adaptation to the canal space.

All groups demonstrated a preference for Grossman's sealer because it was felt to have better working properties. The second most frequent response for the most ideal sealer was Kerr's sealer (Richert's formula). Several "write-in" responses were received for Wach's paste, Roth's formula, and others, covering the whole gamut of sealers.

In all groups and by a wide margin, the most popular method of obturation was shown to be lateral condensation.

The point of termination of preparation and obturation showed variation by age group and geographic areas; however, there was fairly even distribution between 0.5 mm and 1.0 mm from the radiographic apex. The overall response showed a slight preference for 1.0 mm short of the radiographic apex.

Single appointment endodontics showed a correlation with age groups. Younger diplomates felt single appointment endodontics was a viable treatment mode while other diplomates felt that it was not. Several who felt that single appointment endodontics was not a viable treatment cited evidence of more pain associated as a post-treatment sequela. Overall, there was a feeling that single appointment treatment was not a viable treatment mode. There was further variation within geographic areas; groups A, D and E felt the treatment was more acceptable.

Microbiology and pharmacology

The repondents in all groups felt that a negative culture did not necessarily predispose success.

Penicillin was the antibiotic of choice for use in oral infections, except for respondents in their 60's who showed a slight preference for erythromycin.

The rationale for use of antibiotics in all groups was swelling with pain and fever (temperature over 99°F).

Recalls

Follow-up examinations were carried out most frequently for a period of two years by all groups.

Success was determined most frequently by diminished size and/or complete resolution of the lesion. Variation was shown in both age groups and geographic areas. The overall

response showed an even distribution between the two responses.

The most frequent response to the percentage of recalls obtained was 30 per cent (overall and in all groups), with the exception of respondents in their 50's who indicated a fairly equal distribution of response between 10, 20 and 30 per cent.

The use of a postal card was indicated by all groups to be the method most used for patient recall.

Success rates overall were judged to be 95 per cent (overall in all groups) except respondents in their 30's, who indicated a split between 90 and 95 per cent, and respondents in their 70's or above who felt their success rate was closer to 90 per cent.

Surgical endodontics

There was some variation in responses to success rates in surgical cases; however, responses in general were in the range of 90 to over 95 per cent. It must be acknowledged that these, as many other responses, are based upon subjective judgments rather than supported facts. The only noticeable variation was a definite preponderance of responses of 90 per cent success reported by Group A in geographical area distribution.

Professional activities

The diplomates indicated that group presentations were made from 0-2 times per year. A distribution of responses over this range was noted in all groups, with an overall response indicating a majority of respondents making presentations less than once per year.

Attitudes with respect to the ADA were generally favourable with 74.6 per cent overall respondents favouring joint ADA/AAE membership. A number of the negative responses noted that the ADA stand on N-2 made them question if they had a voice in the issue or in ADA policy in general. Of the responses to this question, younger diplomates were more in favour of ADA/AAE disassociation.

By far, the majority of respondents favoured AAE meetings only once per year. The overall percentage in this instance was 85.9 per cent.

Personal information

The majority of respondents holding diplomate status who answered the survey were in the age range 40 to 50 (79.4 per cent).

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1 AAE Membership Roster. Atlanta, American Association of Endodontists, p. 20, 1976.
2 Lane, A. J. and Grossman, L. I. Culturing root canals by endodontic diplomates: a report based on a questionnaire. Oral Surg 32:416, 1971.
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4 Continuing Education Course Listing. J Amer Dent Ass 93:1192, 1976.

Survey of Diplomates — Table 1

We wish to thank you for your time and consideration in completing this questionnaire.

All respondents will remain anonymous.

I. Literature evaluation

1. Which current text on endodontics do you consider most suited for use by the general practitioner?
   A. Ingle
   B. Weine
   C. Cohen and Burns
   D. Grossman
   E. Other _____
2. Which journal would you consider most beneficial to further the endodontic knowledge of the general practitioner?
   A. Journal of Endodontics
   B. O.O.O.
   C. JADA
   D. Other _____

II. Endodontics in general practice

3. Of the iatrogenic causes for pulpal pathologies, which do you consider of most frequent incidence?
   A. Lack of water coolant
   B. Desiccation from air blast
   C. Exposure
   D. Cytotoxic filling materials
   E. Lack of base materials
   F. Other _____
4. In which aspect of endodontics do you consider general practitioners to be the weakest?
   A. Access opening and anatomy
   B. Cleaning and shaping of canals
   C. Obturation
   D. Post operative care of endodontically treated teeth (need for crowns, etc.)
   E. Surgery
   F. Other _____

III. Referrals

5. How many consistent, referring dentists do you consider necessary for a full-time endodontic practice?
   A. 10–15
   B. 15–20
   C. 20–25
   D. 25–30
   E. Other _____
6. Of your principal referring dentists, what is the nature of their referrals?
   A. All of their endo cases
   B. Posterior teeth only
   C. Molars only
   D. Surgery and retreatment areas only
   E. Mixed areas, mostly molars
   F. Other _____
7. Of your principal referring dentists, into which categories would most (80% or more) of them fit? (check two)
   A. General practitioner

B. Specialist
C. In practice less than 5 years
D. In practice 5–10 years
E. In practice 10–20 years
F. In practice over 20 years

8. How many days per week do you practise in your office (regular office hours)? Answer only if you are in private practice 3 days or more per week.
A. 3 days per week
B. 4 days per week
C. 5 days per week
D. 6 days per week
E. Other _____

IV. Treatment evaluation

9. As a generalization, who do you consider the *best* patients from a management standpoint? (answer two)
A. Men
B. Women
C. Below 25 years of age
D. 25–40 years of age
E. 40–45 years of age
F. 55–70 years of age
G. Above 70 years of age

10. Do you ever do a pulp capping procedure (direct or indirect) on a patient referred to you for treatment? (as a "permanent" treatment)
A. Yes
B. No

11. What do you consider the most difficult problem in re-treating teeth previously treated with N-2?
A. Inability to remove the N-2 filling material
B. Inability to negotiate canals (calcified, ledged, etc.)
C. Postoperative pain
D. Lack of success in lesion resolution
E. No problems not encountered in other re-treatments
F. Other _____

12. Rank the following areas of endodontics in order of difficulty: (assign the *lowest* number to the *most* difficult)
A. _____ Diagnosis
B. _____ Endodontic radiology
C. _____ Treatment of emergencies
D. _____ Surgical treatment

13. Do you routinely take a radiograph at 20°–30° from the mesial or distal to disclose any unusual canal morphology?
A. Yes
B. No

V. Endodontic preparations

14. Which method of canal preparation do you consider most ideal?
A. Flair filing (step-back)
B. Mechanical preparation (endodontic handpiece)
C. Standard preparation (filing with each instrument to the working length and circumferential filing alone)
D. Other _____

15. Which irrigant do you consider the most ideal to use in canal preparation?
A. 5.25% sodium hypochlorite
B. 2.6% sodium hypochlorite
C. 1.3% sodium hypochlorite
D. Saline solution
E. Anaesthetic solution
F. Other _____

16. What type file do you routinely use?
A. Rat tail
B. K-type
C. Hedstrom
D. Fixed handle
E. Test handle
F. Other _____

VI. Obturation

17. What obturation material do you consider the most ideal?
A. Silver points
B. Gutta percha
C. Other _____

18. For what reason do you consider your choice in question #17 to be most ideal?
A. Better manipulation
B. Better adaptation for the prepared canal
C. Less tissue toxicity
D. Other _____

19. Which root canal sealer do you consider the most ideal?
A. Tubli-seal
B. Kerr's sealer (Richert's formula)
C. AH-26
D. Grossman's sealer
E. Other _____

20. For what reason do you consider your choice in question #19 to be the most ideal?
A. Better working properties
B. Lower toxicity
C. Better adaptation to canal
D. Cost
E. Other _____

21. Which technique of obturation do you use?
A. Lateral condensation
B. Warm gutta percha
C. Chloropercha
D. Other _____

22. At what level, compared to the radiographic apex, do you consider ideal for termination of the root canal filling?
A. At the radiographic apex
B. 0.5 mm short of the radiographic apex
C. 1.0 mm short of the radiographic apex
D. 1.0–2.0 mm short of the radiographic apex
E. Level depends on character of the radiolucent lesion (Weine's criteria: 1.0 mm with no lesion; 1.5 mm with radiolucent lesion, 2.0 mm with radiolucent lesion and root resorption)
F. Other _____

23. Do you believe single appointment endodontics a viable treatment mode?
A. Yes
B. No
C. If no, why _____

VII. Microbiology and pharmacology

24. Do you consider a negative culture an indicator of future endodontic success?
A. Yes
B. No

25. Assuming a patient is not allergic to any medications, what is your antibiotic of choice in treating an area of infection of endodontic origin?
A. Tetracycline
B. Penicillin
C. Erythromycin
D. Cleocin
E. Keflex
F. Other _____

26. When would you use an antibiotic to treat a patient who comes to your office with an endodontic problem? (May check more than one answer)
A. Swelling with pain
B. Fever (above 99°F)
C. Swelling without pain
D. Malaise
E. Other _____

VIII. Recalls

27. How long do you do follow-up exams on endodontically treated cases?
    A. 6 months
    B. 1 year
    C. 2 years
    D. 4 years
    E. Other _____

28. What criteria of radiographic evidence do you use for determining success or failure?
    A. Diminished size of lesion
    B. No lesion (complete resolution)
    C. Trabeculation within lesion
    D. Other _____

29. What percentage of your patients respond to recall notices?
    A. 10%
    B. 20%
    C. 30%
    D. 40%
    E. 50%
    F. Other _____

30. How do you contact your patients for recall?
    A. Card
    B. Letter
    C. Phone
    D. Card or letter with a routine phone call
    E. Other _____

31. Based upon evidence from recalls of two years or more, what is the estimate of your success rate on *non-surgical* endodontic cases?
    A. Below 70%
    B. 80%
    C. 90%
    D. 95%
    E. Other (specify) _____

IX. Surgical endodontics

32. Based upon evidence from recalls of two years or more, what is the estimate of your success rate on *surgical* endodontic cases?
    A. Below 70%
    B. 80%
    C. 90%
    D. 95%
    E. Over 95%

X. Professional activities

33. How often do you make endodontic presentations to local, state or national groups?
    A. Less than once per year
    B. About twice per year
    C. About five times per year
    D. About ten times per year
    E. Over ten per year

34. Do you consider ADA membership necessary for AAE membership?
    A. Yes
    B. No
    If no, explain _____

35. Would you like to see meetings of the AAE membership more often than on the current yearly basis?
    A. No
    B. Yes
    if yes, why _____

XI. Personal information

36. What age group are you in?
    A. 30's
    B. 40's
    C. 50's
    D. 60's
    E. Over 70 years of age

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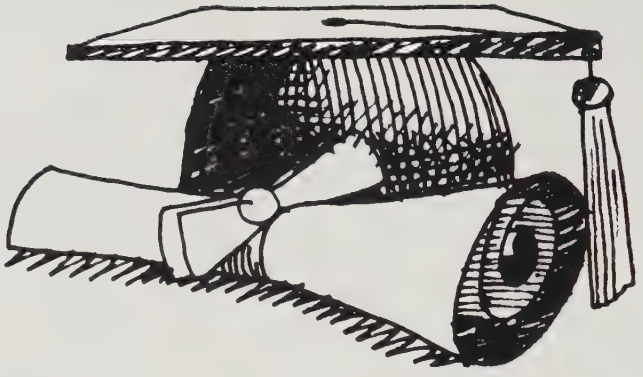

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Historiquement, on s'est intéressé depuis très longtemps à l'occlusion. Ainsi, depuis plus d'un siècle une multitude de théories sont apparues, certaines évoluant, d'autres disparaissant.

Il faut dire qu'au début, les moyens techniques d'étude de l'occlusion étaient très rudimentaires. Cet état de fait suscita la formulation de certaines théories fort attrayantes sur le papier mais souvent hors de la réalité clinique. On vit disparaître entre autres la théorie sphérique de Monson, la théorie d'occlusion balancée de Bonvill reprise subséquemment et améliorée par Gysi's.

Avec la venue de nouvelles méthodes d'étude de l'occlusion aidées par les techniques toujours plus poussées des articulateurs, de la radiographie, de l'électromyographie, de la physiologie neurologique et musculaire, de nouvelles théories sur l'occlusion sont apparues. Souvent contradictoires elles s'entendent quand même sur le but avoué de mieux connaître la physiologie de l'occlusion, ses maladies et leurs traitements.

C'est donc dans l'optique des maladies de l'occlusion et de la réhabilitation buccale à l'aide de la prothèse partielle fixe que nous étudierons trois théories contemporaines d'occlusion. Nous verrons en quoi elles se ressemblent et diffèrent, ceci théoriquement et principalement dans leurs techniques correctives pratiques:

1. Jankelson (partiellement modifiée)

a) Théorie

Cette théorie, relativement récente fait appel aux connaissances actuelles sur la physiologie de base de la dentition tant qu'à la morphologie dentaire, des relations intra et inter arches des dents et des déterminants articulaires postérieurs.

Elle admet comme base une occlusion centrique correspondant à la relation centrique, position stable d'où tout mouvements devraient prendre son origine. Elle admet une position physiologique de repos variant de .5 à 1mm. située immédiatement sous la relation centrique.

Cet état physiologique admet une position stable des dents qui répond aux exigences mentionnées tout en conservant sa stabilité.

Pathologiquement, elle admet que l'usure causée par la fonction permet un déplacement des dents qui accentue progressivement un déplacement de l'occlusion centrique rétrude (relation centrique) vers une occlusion antérieure à celle-ci.

Cette différence serait principalement due à cette usure qui permettant un mouvement dentaire, transforme une occlusion physiologique en une malocclusion dont la sévérité est quelque peu proportionnelle à l'usure des dents, au déplacement antérieur de l'intercuspidation maximale et du mouvement individual des dents.

D'une façon précise, la perte de la morphologie dentaire est à la base de cette dégradation progressive de l'occlusion. Pour redonner la physiologie normale et corriger les différents troubles associés aux malocclusions, Jankelson propose une méthode par laquelle la morphologie normale des dents est recréée par meulage. Cette procédure permet l'élimination des contacts défectueux et se trouvant sur les surfaces inclinées des cuspides loin des bouts de celles-ci et loin des fosses. Le recontournage permet aux contacts de se déplacer afin que les bouts des cuspides contactent dans les fosses.

Ce changement dans la position des contacts permet un déplacement dentaire qui provoque un changement de la position de l'intercuspidation maximale, celle-ci partant d'une position pathologique antérieure pour aboutir à une position physiologique rétrude correspondant à la relation centrique. Ce phénomène de mouvement permet l'élimination naturelle de nombreux contacts prématurés et mal placés.

b) Technique

Pour en arriver à ce résultat, Jankelson propose que l'opérateur guide le patient en relation centrique en faisant sourire celui-ci et en appliquant une pression digitale sur le creux du menton, cette pression étant dirigée vers l'arrière et vers le bas. Quand le patient ferme ''sans menton'', il tombe en relation centrique.

Pour reconnaître les prématurités, il utilise les cires d'occlusion et un crayon indélibile sur les dents du maxillaire inférieur pour débuter. Par palpation et examen des cires, il devient ainsi possible de déterminer la position des contacts prématurés en centrique.

Une occlusion normale physiologique devrait présenter selon Jankelson des critères diagnostiques favorables tel, (1) le critère auditif ou le bruit de la fermeture serait un son clair, sec et sonnant. Si un contact déflectif est présent, un son prolongé et sourd se fait entendre. (2) Un critère tactile présentant une douceur à peine perceptible du mouvement des dents lors de la fermeture en relation centriques s'opposant à une rudesse individuelle des dents lors de la fermeture présentant des contacts déflectifs. (3) Un critère visuel ou les cires devraient présenter pour une occlusion physiologique de très petites zones de contacts sur la ligne incisive des antérieures, sur les bouts des cuspides, la base des fosses centrales et dans la région des crêtes marginales des postérieures.

L'objectif du réajustement occlusal devrait donc tendre vers la diminution des contacts trop larges hors de leur position normale, ceci en enlevant les régions déflectives qui interfèrent avec la fermeture complète de l'occlusion. Pour compléter ceci, on devrait restaurer la morphologie originale des dents ce qui inclus le retour aux surfaces sphéroïdales, redéfinier les crêtes et les points de contact et accentuer et approfondir les sillons. L'importance de l'intersurface entourant les points de contact devrait toujours être présente à l'esprit.

Classification des contacts déflectifs selon leurs localisations

Jankelson classifie trois types de contacts défectueux, et trois sous-types qui contribuent secondairement à la sévérité des contacts déflectifs.

Cl. I et IA.

Les surfaces buccales des cuspides buccales mandibulaires occlusionnant (Cl. I) avec l'aspect lingual des cuspides buccales du maxillaire. (Cl. IA.)

Cl. II et Cl. IIA.

Les surfaces palatines des cuspides linguales maxillaires (Cl. II) occlusionnant avec la surface buccale des cuspides linguales mandibulaires (Cl.IIA).

Cl. III et Cl. IIIA.

La surface buccale des cuspides linguales du maxillaire. (Cl. III) occlusionnant avec les surfaces des cuspides buccales de la mandibule (Cl. IIIA).

3) Protrusion

1) on s'assure la présence d'un guide antérieur convenable

2) on recontourne les fosses centrales ou les crêtes marginales distalement à la mandibule au point de contact en centrique, tout comme la correction des Cl. IIA et des Cl. IIIA. Ceci est aussi valable pour le maxillaire où le meulage se fait mésialement en corrigeant les Cl. II et les Cl. III.

Résultat:

Lorsque tout ce travail de recontournage a été accompli, les dents reprennent leur position initiale et on retrouve ainsi une intercuspidation maximale correspondante à la relation centrique.

Les mouvements dentaires et mandibulaires ayant été occasionnés par la malocclusion peuvent se résumer ainsi:

Cl. I — protrusion mandibulaire, mésialisation des postéros inférieurs.

Cl. II — instabilité mandibulaire (elle avance et recule).

Cl. III — les dents supérieures se déplacent en s'ouvrant comme un éventail, les inférieures se lingualisent en créant un encombrement incisif, la mandibule recule un peu.

II Pankey, Warin (Ramfjord)

Théorie:

Cette théorie connue aussi sous le nom de ''longue centrique'' diffère en bien des aspects de la théorie et de la pratique énoncée par Jankelson. Pour cela, on admet que la relation centrique correspondant à l'intercuspidation maximale est un fait qui devrait être présent chez une partie de la population seulement. Il admet aussi qu'il est physiologique et naturel de posséder une intercuspidation maximale antérieure à la relation centrique. Cependant, il affirme que cliniquement et électromyographiquement, la relaxation des muscles masticatoires et l'activité harmonieuse des muscles de la déglutition sont les mieux réussies par l'élimination d'un glissement partiellement vertical de la relation centrique à l'occlusion centrique ''*antérieure*'' (intercuspidation maximale).

Sa technique de base prône un retour vers la centrique tout en permettant de conserver l'intercuspidation maximale antérieure, ceci sans glissement vertical. Cela devrait régler selon lui les troubles d'occlusion tel le bruxisme, les disfonctions du joint temporo-mandibulaire, les troubles péridentaires de surocclusion etc....

Pour cela, il institue une méthode de meulage sélectif qui élimine les interférences et les contacts prématurés en relation centrique tout en amenant ceux-ci à la même hauteur verticale que l'intercuspidation maximale. En éliminant toute interférence entre les deux points de fermeture, il permet donc l'intercuspidation maximale de se déplacer librement de la relation centrique à une position plus antérieure, ceci sans possibilité de glissement vertical. Le glissement antérieur devient donc facultatif et non obligatoire lors d'une contraction musculaire accrue.

Comme cause primaire à la création des interférences aboutissant au glissement vertical, il est plus ou moins précis en évoquant la pose de restauration mal définie occlusalement, la carie, l'usure, la perte des dents, la diminution du support péridentaire etc.... Il est évident que toutes ces causes contribuent beaucoup à la formation des malocclusions, mais comme nous le verrons plus loin, ce concept causatif s'institue à la suite de causes plutôt radicales.

Cependant, Ramfjord s'étend considérablement sur les mécanismes neuro-musculaires de la mastication, l'appren-

tissage des paterns d'évitement des interférences, des systèmes proprioceptifs de guidage des mouvements mandibulaires, etc. . . .

Technique

La procédure est une évolution des principes généraux de Schuyler qui préconisent l'élimination des contacts prématurés en centrique et la création d'une liberté de mouvement de la centrique à l'intercuspidation maximale acquise par une ''longue centrique''.

Pour cela, l'opérateur se sert de cires d'occlusion pour déterminer quand se font les contacts prématurés en centrique lorsque le patient est forcé en position rétrude. La localisation des contacts une fois connue, leurs morphologies et leurs étendues sont signifiées à l'aide de papier carbone.

Interférences en centrique

Comme les interférences se retrouvent sur les aspects mésio-buccaux des cuspides linguales maxillaires contre les aspects disto-linguals des cuspides buccales mandibulaires, le meulage devrait s'effectuer de façon à ce que ces plans inclinés soient amoindris et permettent au bout des cuspides de contacter le fond des fosses centrales et des crêtes proximales. Le libre jeu entre la relation centrique et l'occlusion centrique devrait alors apparaître, car les sièges des cuspides devraient être réduits à la même hauteur en relation centrique qu'en occlusion centrique. Un tel meulage procure une région plate horizontale entre les deux positions de contact et procure le nécessaire pour la ''longue centrique'', ou la liberté de mouvements en centrique.

Les interférences causant un glissement latéral sont meulées de la même façon que celles qui causent un glissement antérieur. Pour cela, des sièges occlusaux sont meulés afin de permettre le contact du bout des cuspides dans le fond des fosses. De plus, si les arrêts en centrique sont sur les surfaces inclinées des cuspides, les fosses devraient être élargies pour permettre le contact bout de cuspide contre fond de fosse.

Cl. III

Si on a un glissement latéral excessif causé par une interférence opposant la surface buccale des cuspides linguales maxillaires contre la surface linguale des cuspides buccales mandibulaires le meulage se fera au dépend de la cuspide maxillaire dans le but de conserver la stabilité.

Cl.II

Cependant, des glissements latéraux peuvent aussi se produire entre la surface buccale des cuspides linguales mandibulaires contre la surface linguale des cuspides linguales maxillaires. Dans ce cas, le meulage se fera au dépend des cuspides mandibulaires, car ces cuspides ne maintiennent pas l'occlusion et ne compromettent donc pas la stabilité.

Pour compléter l'ajustement de la centrique, s'il se présente des interférences détruisant l'harmonie occlusale sans glissement de la relation centrique à l'occlusion centrique, cellee-ci sont causées par des contacts trop haut. Pour cela, si la cuspide consernée ne fait pas contact lors des mouvements excursifs latéraux, le fond de la fosse correspondante est meulée. Dans le contraire où la cuspide fait interférence lors des mouvements excursifs, le bout de la cuspide est alors réduit.

Une fois l'ajustement de la relation centrique terminé, les molaires et prémolaires opposées devraient prendre un contact occlusal simultané lorsque la mandibule est fermée en relation centrique. La mandibule ne devrait pas alors glisser ou basculer à la suite de ce léger contact. De plus, les contacts devraient tous avoir la même force en occlusion centrique et ceux-ci devraient être maintenus sans interférences quand la mandibule se déplace de la relation centrique à l'occlusion centrique. Cette occlusion dite ''longue centrique'' que les auteurs qualifient de stable ne devrait présenter aucun gain ou perte de la dimension verticale occlusale. Les dents antérieures devraient contacter en occlusion centrique et être libres de contact en relation centrique.

Interférences en latéralité et protrusion

Selon les auteurs, la technique de ''Bull'' élaborée par Schuyler devrait être utilisée. Dans cette technique, les aspects linguaux des cuspides buccales maxillaires et les aspects buccaux des cuspides linguales mandibulaires devraient être meulés lorsque des interférences se produisent du côté fonctionnel en latéralité.

Cette méthode permet de conserver les contacts en centrique et assurerait le maximum de stabilité. Complétant ceci, ces auteurs favorisent un nombre minimal de contacts si possible et préfèrent la disclusion par la canine si celle-ci possède une bonne condition péridentaire.

Pour corriger les interférences en protrusion, toujours selon cette règle, les auteurs préconisent le meulage de l'aspect lingual des incisives supérieures à partir des points de contact en centrique jusqu'à ce qu'une protrusion harmonieuse se présente. Les interférences postérieures si présentes devraient être éliminées en meulant l'aspect lingual des cuspides buccales du maxillaire et l'aspect buccal des cuspides linguales mandibulaires.

L'ajustement des interférences du côté balançant lors des latéralités devraient se faire selon les mêmes principes que pour l'ajustement des interférences en fonctionnel. En meulant de façon très précise, les contacts en centrique devraient être maintenus si on tire avantage des sillons et des plans inclinés des cuspides.

Pour cela, seulement l'aspect buccal des cuspides linguales maxillaires devrait être meulé.

Résultat

L'auteur affirme que cette méthode procure une correction efficace des malocclusions tout en instaurant une stabilité fonctionnelle. Le retour libre sans interférence à la centrique est ainsi assuré tout en permettant au patient la liberté de retourner en occlusion centrique. Cette méthode procure apparemment de très bons résultats si elle est exécutée avec soins.

III Simring & Ward

Un aspect important de toute malocclusion réside dans le dommage qu'elle peut causer aux tissus péridentaires supportant. C'est pour cette raison que les périodontistes se sont toujours intéressés de près à ce problème et qu'ils ont montré l'importance de traiter ces conditions.

Deux périodontistes, Simring et Ward dans un manuel clinique pour le traitement des conditions péridentaires présentent une méthode de correction des malocclusions qui est principalement axée sur la répercussion périodontique du problème.

Ils ne décrivent pas de théorie, mais d'après l'étude de leur méthode technique, il est évident qu'ils admettent que l'occlusion centrique fonctionnelle hors de la relation centrique est physiologique. Cependant, ils reconnaissent la nécessité de pouvoir fermer en relation centrique, ceci sans interférence.

Ce qui caractérise le plus leur technique réside dans le soin qu'ils apportent au recontournage physiologique des dents pour éliminer les cuspides plongeantes, les dents en malposition, les dents ayant subi une forte attrition, etc. . . . Leur but avoué est de créer des contours favorables à la stimulation adéquate des tissus péridentaires et d'éliminer toutes conditions morphologiques des dents néfastes à ceux-ci.

En plus, ils attachent une grande importance au recontournage esthétique des dents selon des principes qui favorisent le maximum de stimulation péridentaire.

Technique

Pour accomplir leur travail, ils se servent d'une méthode particulière qui fait appel aux cires d'occlusion pour découvrir l'ordre et l'emplacement des contacts prématurés. Par la suite, à l'aide de papier d'occlusion ayant deux couleurs différentes, ils corrigent l'occlusion selon des règles particulières.

1° Meulage préliminaire

Cette étape consiste au meulage esthétique des dents antérieures et au meulage morphologique des postérieures influençant sur la stimulation du périodonte.

Ainsi, en raccourcissant les dents les plus longues pour les placer au niveau des dents adjacentes et en modifiant leurs contours extérieurs, ils parviennent à recréer une harmonie qui est esthétique. Pour prévenir la perte des guides incisifs, ils s'assurent constamment que les dents postérieures se dégagent sans interférence lors du meulage antérieur. Une des étapes de ce meulage consiste à éliminer les facettes d'usure labiales des antéro-inférieures en les arrondissant selon trois critères:

a: Conserver la hauteur incisive s'il y a un contact protrusif simultané des dents adjacentes

b: Conserver cette même hauteur incisive s'il n'y a pas de contact protrusif des dents adjacentes

c: Réduire la hauteur incisive si le contact protrusif se fait en surocclusion sur cette dent.

Pour les dents postérieures, les auteurs recommandent de raccourcir les dents en extrusion et de les meuler de façon à ce qu'elles conservent leur morphologie, si des traitements restauratifs sont planifiés. Par la suite ils éliminent les cuspides plongeantes, et réduisent la hauteur des crêtes marginales hors niveau.

Si les dents présentent une forte attrition et que des surfaces sont aplanies, on les recontourne en ne touchant que l'aspect fonctionnel externe des cuspides supportantes. Pour cela, on les meule en leur redonnant une forme sphéroïdale, ceci sans toucher à l'aspect fonctionnel interne. Cette étape terminée, on réduit la dimension bucco-linguale des dents selon des normes très précises, ceci en redonnant des formes sphéroïdales.

2° Meulage d'occlusion

Lorsque le meulage préliminaire est terminé, on recherche par les méthodes connues les emplacements des contacts prématurés en centrique. Ainsi on utilise la palpation, la visualisation des déviations mandibulaires l'auscultation et la visualisation des cires d'occlusion.

Lorsque l'emplacement des interférences a été déterminé, on les meule selon deux règles!

Règle 1: Réduire les cuspides qui interfèrent avec les mouvements excursifs.

Exception à la règle 1: réduire la fosse de l'interférence en centrique d'une dent interférant dans les mouvements excursifs si la dent contenant la fosse est en extrusion. Meuler les cuspides adjacantes à la fosse aussi.

Règle 2: Meuler les fosses qui présentent des interférences en centrique lorsque les cuspides correspondantes n'interfèrent pas lors des mouvements excursifs.

Exception à la règle 2: reduire les cuspides qui font interférence en centrique sans faire interférence dans les mouvements excursifs si elles sont très pointues dans toute l'occlusion.

Lorsque l'occlusion centrique a été ajustée de cette façon, les auteurs recommandent d'éliminer les interférences en relation centrique, en essayant autant que possible de meuler en des endroits qui n'ont pas de contact fonctionnel dans les mouvements excursifs.

Protrusion

En faisant mordre le patient sur un papier d'articulation bleu et en lui demandant d'effectuer le mouvement protrusif on obtient des marques sur le lingual des incisives supérieures. En demandant à nouveau au patient de mordre en centrique, mais cette fois sur un papier rouge on obtient les contacts en centrique supérieurement aux marques bleues. Le meulage est alors effectué en préservant l'arrêt en centrique jusqu'à ce que toutes les interférences aient été éliminées.

Latéralité fonctionnelle.

Lorsque le patient exécute les mouvements de latéralité fonctionnelle, on regarde si certaines cuspides provoquent une disclusion trop rapide. Si c'est le cas, on réduit leur

aspect faisant contact jusqu'à ce que plusieurs dents viennent en contact (fonction de groupe). Par suite, un ajustement plus précis est effectué selon la règle de BULL en meulant l'aspect lingual des cuspides buccales du maxillaire supérieur et l'aspect buccal des cuspides linguales mandibulaires. Pour cela, la technique des cires d'occlusion et des papiers d'occlusion de deux couleurs est utilisée.

Latéralité balançante

Pour éliminer les interférences présentes, les cires et les papiers d'occlusion sont aussi utilisés. Se basant sur trois critères les auteurs déterminent que si:

1° La cuspide buccale inférieure est harmonieuse dans son mouvement de latéralité fonctionnelle, la cuspide linguale maxillaire doit être réduite, en conservant la centrique si possible.

2° La cuspide linguale maxillaire est harmonieuse lors des mouvements de latéralité fonctionnelle, la cuspide buccale mandibulaire doit être réduite.

3° Les cuspides linguales du maxillaire et buccales de la mandibule sont harmonieuses lors des mouvements de latéralité fonctionnelle, une des deux cuspides doit être meulée seulement. Pour la choisir, on tient compte du nombre des contacts en centrique, du plan d'occlusion et du support péridentaire des deux dents concernées.

Résultat:

Le meulage ainsi effectué procure une élimination des interférences statiques et fonctionnelles tout en redonnant une morphologie dentaire favorable aux tissus péridentaires.

Discussion

Des trois théories et méthodes énumérées précédemment, chacune fait appel à un concept défini sur ce qui devrait être idéal pour le patient.

Pour la méthode de Simring & Ward, l'accent est placé sur la réhabilitation péridentaire seulement. Il n'est aucunement question de trouble musculaire ou articulaire. Le but recherché sera évidemment obtenu, mais la stabilité de la condition reste quelque peu obscure.

Par contre, la méthode Pankey-Warin vise à redonner une physiologie normale au complexe neuro-musculaire et articulaire en redonnant au patient la possibilité de retourner en centrique. Le patient conserve cependant son ancienne ''occlusion centrique'' qui peut être plus ou moins antérieure à la relation centrique. La liberté en centrique ainsi obtenue se fait donc à même la morphologie dentaire existante sans promouvoir de mouvement correcteur des dents. Cette incertitude dans la fermeture pourrait donc créer une instabilité qui pourrait permettre un retour éventuel à la malocclusion.

Pour terminer, la méthode de Jankelson corrige la malocclusion par le chemin inverse qui la crée, c'est-à-dire une usure qui a causé un déplacement dentaire.

En redonnant la morphologie originale des dents, elle engage le déplacement de celles-ci par des plans inclinés à leur position originale, en relation centrique, ou, très près de celles-ci. La nouvelle occlusion centrique ainsi obtenue possède donc une potentiel de stabilité accru, car dans cette position, il n'y a plus de mouvement dit de ''liberté''.

Par le meulage morphologique correctif, les mêmes résultats péridentaires que la méthode de Simring sont obtenus. Ainsi donc, par une méthode on obtient les résultats recherchés par les deux autres méthodes en gagnant sur la stabilité.

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ONTARIO — Chesterville. Opportunity for dentist in locality with no dental service at present. Population 1,500 in village, plus surrounding area of 21,000. Office space will be available. Reply to: Chesterville Chamber of Commerce, P.O. Box 316, Chesterville, Ont. K0C 1H0, or call (613) 448-3046.

ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas. Locations are available throughout Ontario. Incentive grants, payable over four years, are $18,000 in Northern Ontario, and $14,000 in Southern Ontario. Alternatively, a guarantee net professional income of $28,000 per annum is offered in Northern Ontario. A limited number of salaried positions are open on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 7 Overlea Blvd., Toronto, Ont., M4H 1A9 or phone: (416) 965-5036.

QUEBEC — Terrebonne. Je cherche dentiste pour travailler à mon bureau 2 jours par semaine — 2 Bureaux bien organisés, secrétaire, assistante, hygiéniste, cavitron, etc, etc. Etabli depuis 30 ans. Gros chiffre d'affaire. Possibilité d'acheter. Appeler Dr. G. Moro, Terrebonne, Qué. (514) 471-3231 ou 471-8519.

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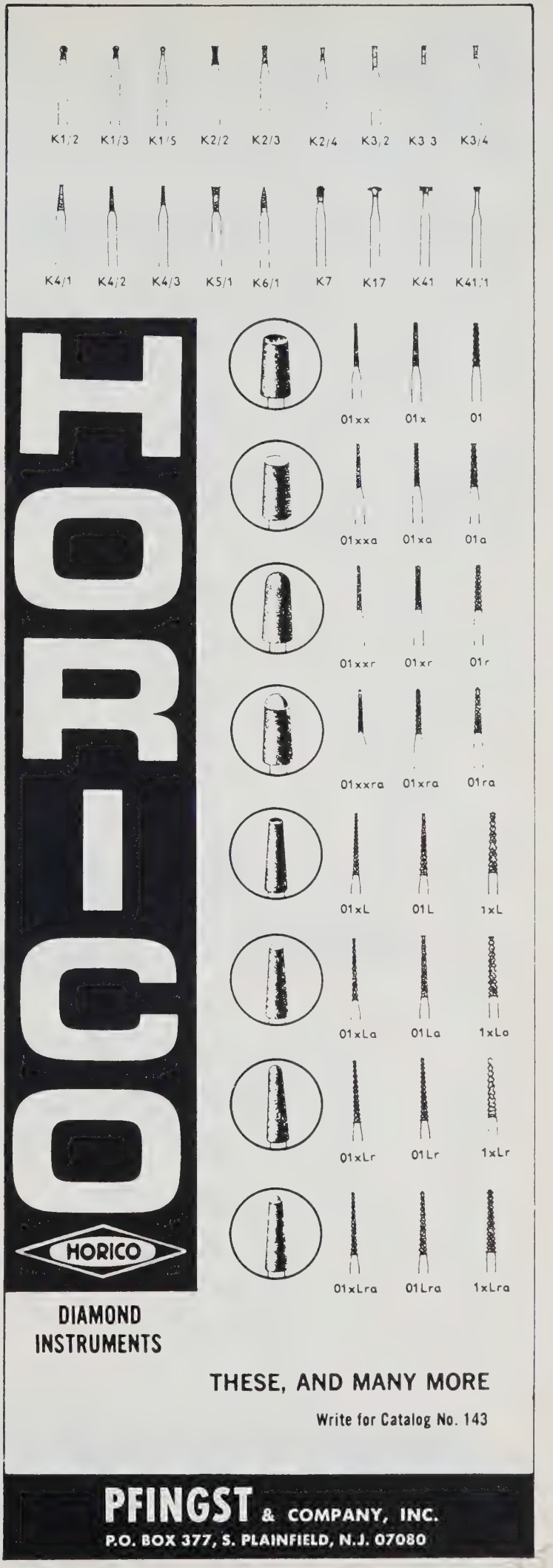

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MEETINGS

WINNIPEG. Going to Winnipeg for the CDA Convention? Plan to arrive a day earlier and update your knowledge of endodontics. Attend the annual meeting of the Canadian Academy of Endodontics, September 9-10, 1978. The Winnipeg Inn, Winnipeg, Manitoba. For further information, contact: Dr. William Christie, 506 Medical Arts Building, 233 Kennedy Street, Winnipeg, Man. R3C 3J5.

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REGISTRATION FORM

For ADVANCE REGISTRATION and DISCOUNT return this form with appropriate fees BEFORE AUGUST 10, 1978 to

1978 CDA Convention Committee
308 Kennedy Street, Winnipeg, Manitoba
Canada R3B 2M6

Please use TYPEWRITER or BLOCK LETTERS

Surname ..... Preferred First Name ..... Prof./Dr./Mr./Mrs./Miss/Ms.

Address .....

Hotel Reservation Form returned ☐ Yes ☐ No Accommodation required ☐ Yes ☐ No

Additional Registrations (No fee for spouse or family members):

Spouse ..... Family Member(s) .....
Preferred First Name

REGISTRATION FEE ENTITLES DENTISTS AND AUXILIARIES TO ATTEND:

- Sunday evening welcome reception (Spouse Welcome)
- * Luncheons on Monday, Tuesday, Wednesday
- Tuesday evening social (Spouse Welcome)

* Tickets for spouse may be purchased at Registration Desk.

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- Tuesday Evening Social
- Wednesday Brunch and Browse

$35. ..... $ _____

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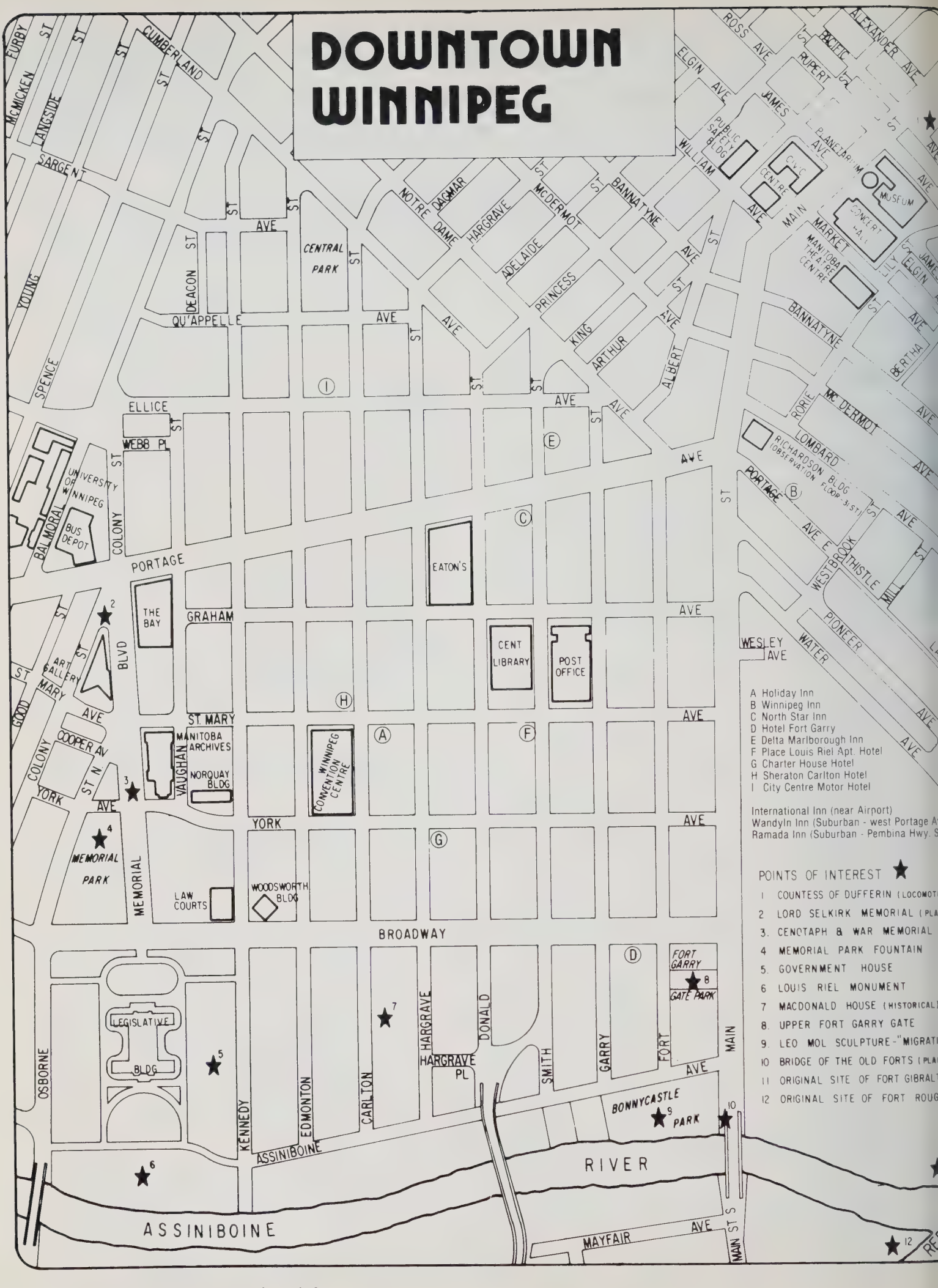
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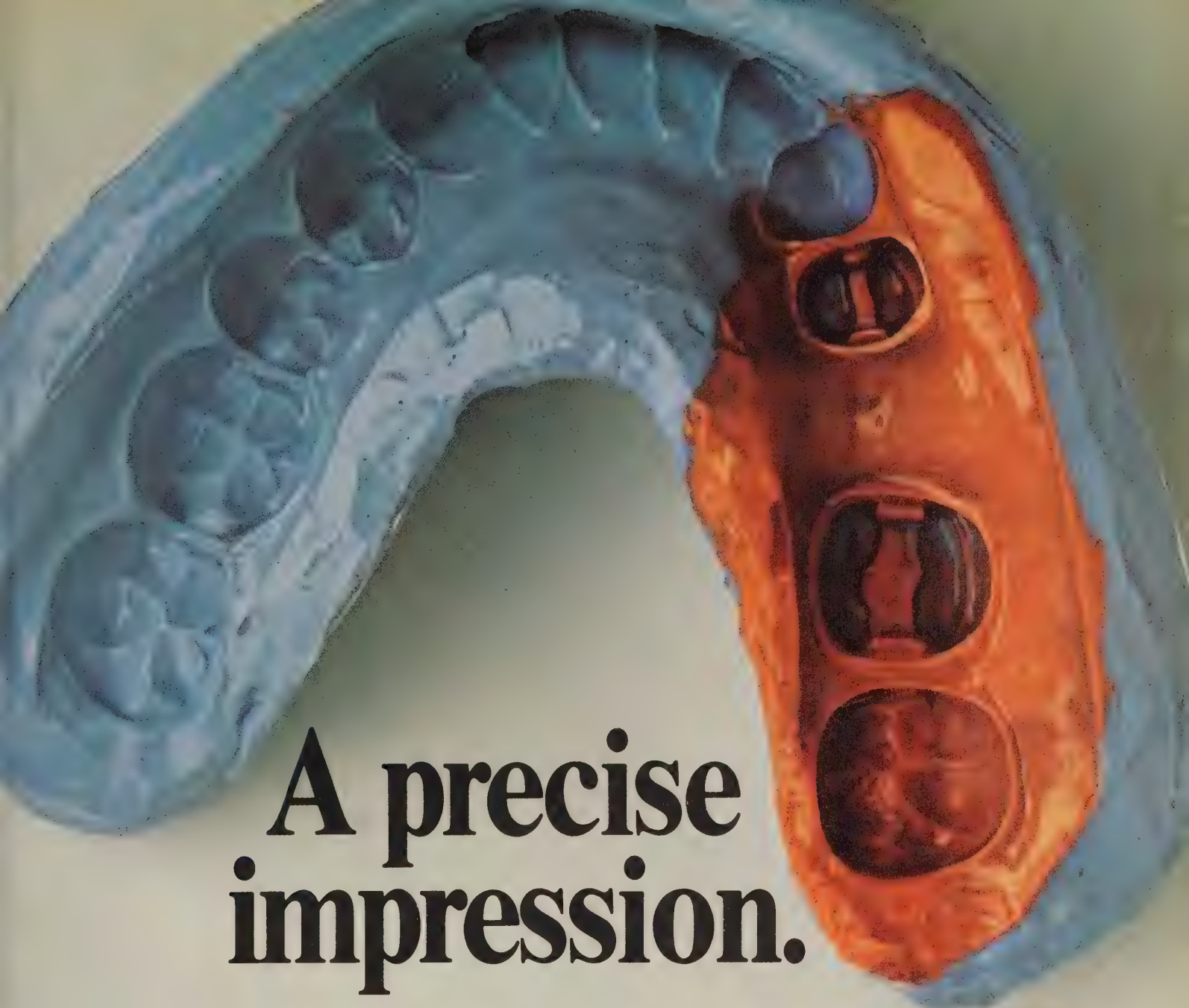

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Canadian Dental Association/Association Dentaire Canadienne

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†Beiswanger, B.B., *et al.*: J. Dent. Child. *45*:137, 1978

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Sept 1978/Volume 44/No. 8

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Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1978, Winnipeg, September 10-13.
1979, Quebec City, September 9-12.

Canadian Meetings

Pacific Coast Society of Orthodontists, 1978 Convention, Hyatt Regency Hotel, Vancouver, British Columbia, October 1-5, 1978. Contact: Dr. J. C. Ryan, #1330 - 925 West Georgia Street, Vancouver, British Columbia V6C 1R5.

Canadians for Health Research, Second National Conference, Chateau Laurier Hotel, Ottawa, Ontario, October 16-17, 1978. Contact: National Conference Committee, P.O. Box 126, Westmount Post Office, Quebec H3Z 2T1. Telephone: (514) 937-8511, ext. 459.

Third Canadian Congress of Dentistry for Children, Vancouver, April 6-8, 1979. Contact: Dr. G. M. Jinks, Suite 301, 1701 West Broadway, Vancouver, British Columbia V6J 1Y3.

Ontario Dental Association, 112th Spring Meeting, Sheraton Centre, Toronto, May 13-16, 1979. Contact: Mrs. W. C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Les Journées Dentaires du Québec, Queen Elizabeth Hotel, Montreal, May 27-31, 1979. Contact: Dr. Morton R. Lang, 5253 Decarie Blvd., Montreal, Quebec H3W 3C3. Telephone: (514) 481-0397.

Western Canada Dental Society Convention, Hotel Saskatchewan, Regina, June 7-9, 1979. Contact: Dr. T. E. Donavon, 205 McCallum Hill Building, Regina, Saskatchewan S4P 2G6.

International Meetings

American Institute of Oral Biology, 35th Anniversary Meeting, Spa Hotel, Palm Springs, California, October 6-10, 1978. Contact: Executive Secretary, American Institute of Oral Biology, P.O. Box 481, South Laguna, California 92677.

Society for Clinical and Experimental Hypnosis, 30th Annual Meeting, Grove Park Inn, Asheville, North Carolina, October 17-22, 1978. Contact: Dr. Shirley Sanders, SCEH Convention 1978, Office of Continuing Education, University of North Carolina, 236 MacNider 202H, Chapel Hill, N.C. 27514.

Second International Prosthodontic Congress, Las Vegas Hilton Hotel, Las Vegas, Nevada, October 19-21, 1978. Contact: American Prosthodontic Society, 919 North Michigan Avenue, Suite 2108, Chicago, Illinois 60611.

American Dental Association, 119th Annual Session, Anaheim, California, October 22-26, 1978. Theme: "Dentistry's Mission: Pursuit of Excellence". Contact: American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

Association of American Women Dentists, Annual Meeting, the Quality Inn, Anaheim, California, October 22-23, 1978, in conjunction with the American Dental Association Convention. Contact: Dr. Jean Savage, 240 - 26th Street, Santa Monica, California 90402. Telephone: (213) 451-5404.

International Symposium on Recent Advances in Clinical Periodontology, Tel-Aviv University Dental School, Israel, October 25-26, 1978. Contact: Dr. Hart Levine, Tour Chairman, Fifth Annual Alpha Omega Mission to Israel (sponsored by the Toronto Alumni Chapter), 2006 Bathurst Street, Toronto, Ontario M5P 3L1. Telephone: (416) 781-2751.

Korean Dental Association, 30th Annual Scientific Congress, Seoul, Korea, November 9-11, 1978. Contact: Jhee, Heun-Taik, DDS, President, Korean Dental Association, P.O. Box 41, Yungdeungpo, Seoul, Korea.

International Congress on Hospital Dentistry, New York City, November 29 - December 3, 1978. Contact: R. P. Hylton Jr., School of Dentistry, University of Minnesota Health Sciences Unit A, Suite 7174, Minneapolis 55455.

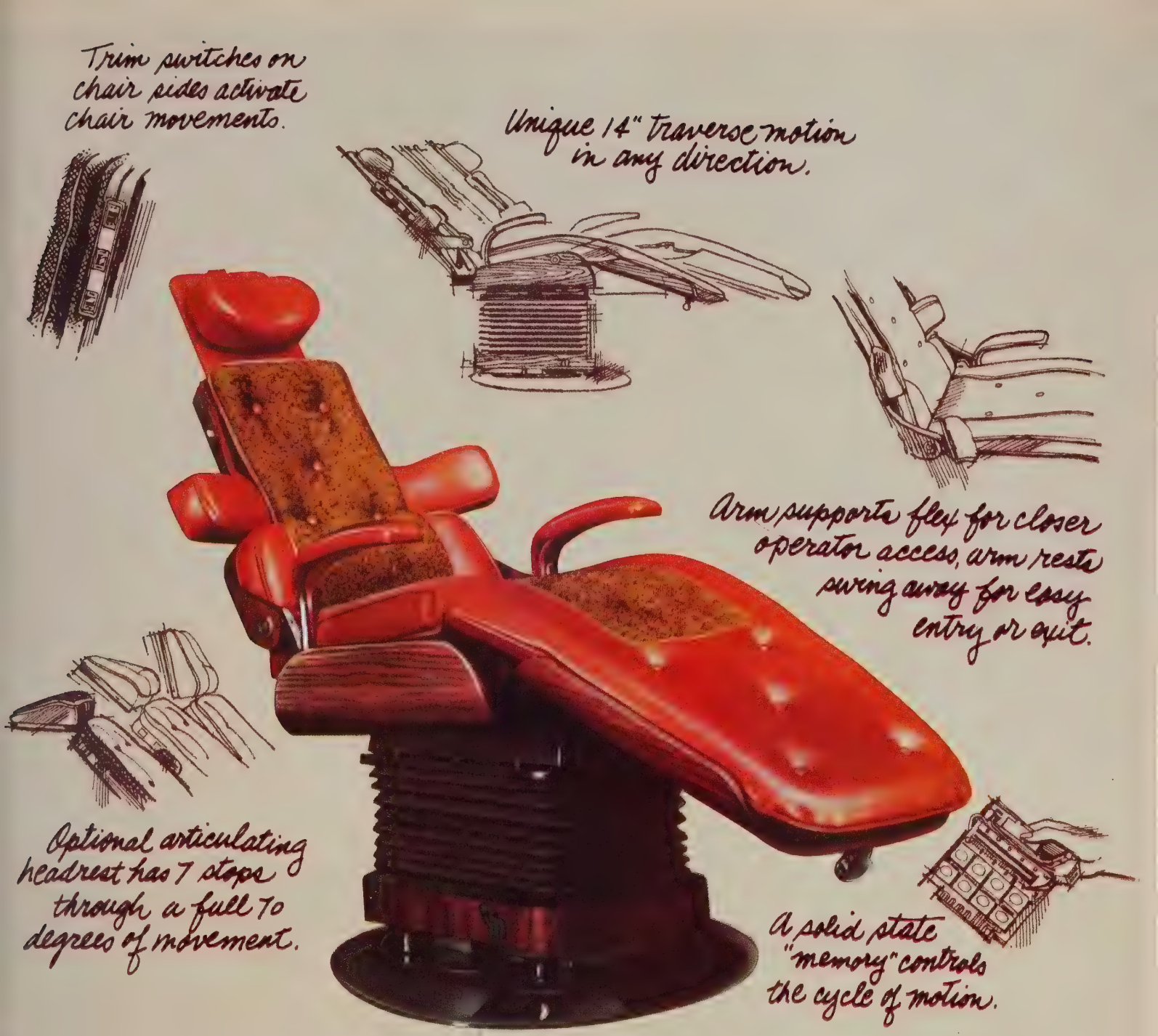
Bermuda Dental Association, Mid-Winter Meeting, Southampton Princess Hotel, Bermuda, January 20-22, 1979. Contact: The Secretary, Bermuda Dental Association, P.O. Box 785, Hamilton, Bermuda. Telephone: 809.29.27676.

Virgin Islands Dental Association Meeting, St. Thomas Sheraton Hotel and Marina, February 29 - March 3, 1979. Contact: Virgin Islands Dental Association, c/o Travel Services, Inc., P.O. Box 1691, Charlotte Amalie, V.I. 00801.

International Conference on Oral Implantology, Jerusalem, Israel, April 1-5, 1979. Contact: Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9.

Asian Pacific Dental Federation, 9th Dental Congress, Merlin Hotel, Kuala Lumpur, Malaysia, April 23-27, 1979. Contact: Dr. Lim Chee Shin, P.O. Box 234, Petaling Jaya Selangor, Malaysia.

Society for the Advancement of Anaesthesia in Dentistry, Second International Congress on Modern Pain Control (Sedation, Anaesthesia and Analgesia in Dentistry), Royal Lancaster Hotel, London, England, July 13-16, 1979. Contact: Secretary, SAAD '79, 53 Wimpole Street, London W1M 7D5, England.



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CDA STUDENT MEMBERSHIP CAMPAIGN '78

During the month of September the Canadian Dental Association will launch its student membership campaign '78 in dental schools from coast to coast. The number of dental students joining the CDA has increased steadily in recent years, with 1977 membership figures hitting an all-time high. 1978 is also expected to be a record year as more and more dental students recognize the fact that membership in their national association is now, more than ever, a sound investment in the future of their careers.

As part of the campaign the CDA Department of Student Affairs will hold a "Welcome to the Profession" reception at each Faculty of Dentistry across the country in September and early October. The receptions in Ontario will be co-hosted by the CDA, the Ontario Dental Association and the Royal College of Dental Surgeons. At each reception the Director of Student Affairs, Linda Teteruck, will be joined by one of the CDA Governors and a member of the provincial dental association who will outline the wide range of activities of the CDA and how these relate to the needs of dental students. Discussions will also focus on the benefits of CDA student membership.

A highlight of each reception will be the gift presentation to the 1977-'78 student representative of the Faculty in recognition of his or her service to the CDA during the past year.

Eligibility requirements for CDA student membership are very straightforward: for a single annual fee of $5.00 any student enrolled in a Canadian Faculty of Dentistry, or any graduate dentist who has proceeded directly from an undergraduate program to a full academic year of advanced study in an accredited school or hospital program, is eligible for CDA membership and its accompanying benefits. In Ontario, the situation differs in that conjoint CDA/ODA membership is being offered to students at an annual fee of $10.00. This entitles any undergraduate student in an Ontario Faculty of Dentistry to the membership benefits of both the CDA and the ODA.

The advantages of student membership in the CDA are many and varied. The $5.00 annual fee entitles the student to:

- a yearly subscription to the Journal of the Canadian Dental Association
- attendance at and participation in the annual CDA National Convention
- an opportunity to participate in the CDA Student Table Clinic Program
- automatic membership in the International Association of Dental Students with its student exchange program and annual International Congress
- access to all CDA publications and the Association's extensive dental library
- direct student representation in the CDA through the selection of your CDA Student Representative
- direct input into all areas of CDA student activity through the CDA Council on Student Affairs and your Student Representative's attendance at the annual Canadian Dental Students' Conference
- information regarding the provincial and national bodies of the dental profession
- information and benefits from the national and provincial dental insurance and investment plans.

Student input in the Canadian Dental Association has been broadened and strengthened through the newly created Council on Student Affairs which reports directly to the CDA Executive Council and the Board of Governors, as do all other full Councils of the Association. During its first operational year, the Council on Student Affairs undertook an extensive number of projects and responsibilities pertaining to the interests of Canadian dental students. All of the Council's major responsibilities and activities will be reported for the first time at the September, 1978, Board of Governors' meeting by the Council Chairman, Richard Gilsig, a fourth year dental student at McGill University.

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CDA'S DAT PROGRAM SUBJECT OF SYMPOSIUM

The Canadian Dental Association's Dental Aptitude Test Committee presented an afternoon symposium during the 10th Biennial Conference of the Association of Canadian Faculties of Dentistry held in June. Participants in the DAT Program session were: Dr. W.R. Teteruck of the University of Western Ontario, Chairman of the DAT Committee; Dr. M.A. Boyd of the University of British Columbia; Dr. G.W. Thompson, formerly of the University of Toronto and now Dean of Dentistry at the University of Alberta; Dr. E.R. Ambrose, Dean of Dentistry at the University of Saskatchewan; and Dr. J.W. Graham of the American Dental Association.

Dr. Marcia Boyd told conference delegates that a study will be carried out at three universities to determine the effectiveness of a personality questionnaire in singling out character traits which might be undesirable in dentists.

Dr. Walter Teteruck explained that the objective of the project is to identify personality traits of students to determine if they coincide with the results of personality tests carried out prior to admission to dental school. If results of the earlier tests compare favourably with the later assessment, he said, the personality tests could be considered a valid tool for screening applicants to dental programs.

Dr. Boyd stated that while "every dental admission committee in Canada is desirous of a reliable and valid method of choosing the very best candidates for its undergraduate program, there is no standard method of student selection and the applicant's pre dental grades weigh heavily in the selection."

Dr. Boyd noted that the best students do not necessarily make the best dentists. She said that if the personality test is found to be a valid screening tool, it might help dental admission officers choose students with a view to the way they will handle patients rather than solely on their "ability to write a science exam or cut a basic cavity preparation."

The test now administered to all Canadian dental school applicants is the Sixteen Personality Factor Questionnaire, or 16PF test. It is an objectively scored, norm-referenced coverage of personality based on 16 normal personality traits.

Preliminary validation attempts have singled out three personality types which might not be suitable for dental practice, said Dr. Boyd.

She described them as: the argumentative, abusive, rash, demanding individual who lacks mature judgment and shows little concern for patients; the mousy student who lacks confidence, needs direction, fears discussion, is unprepared and panics in emergencies; and the tardy, or absent student who never asks for assistance, is distracted, blames others for his or her mistakes, and often does work of minimal quality which must be redone.

Dr. Teteruck said the personality test may make it possible to weed out applicants who may be unsuitable clinicians because of these and other personality traits.

The 16PF test has been a part of the Dental Aptitute Test battery since 1975. The two major components of the DAT are academic and manual. The test was introduced as early as 1966 after a pilot study by the Ontario College of Education, in co-operation with the University of Toronto Faculty of Dentistry, Dr. Teteruck said.

At present all 10 Canadian faculties of dentistry use the DAT to some extent in their selection process, but this is a recent development, he said.

He divided the history of the testing program into three stages: the formative period, 1964-68; the developmental stages of 1968-74; and the reconstruction period of 1974-78.

The papers presented at the DAT Program symposium will be published in the CDA Journal early in 1979.

MEDICAL RESEARCH COUNCIL WELCOMES NEW PRESIDENT

Health and Welfare Minister Monique Bégin has announced the appointment of Dr. René Simard of Montreal as President of the Medical Research Council. The appointment is for a five year term and is effective June 1, 1978.

Dr. Simard is President of the Health Research Council of Quebec, Scientific Director at the Montreal Cancer Institute and Professor of Pathology, University of Montreal. He was born in Montreal and received his education at the University of Montreal and the University of Paris, where he was a Medical Research Fellow at the Institute of Cancer Research, Villejuif, France. Subsequently, as a Medical Research Scholar, he was Assistant Professor of the Department of Pathology, University of Montreal and Associate Professor and Director of Cell Biology, School of Medicine, University of Sherbrooke.

Dr. Simard has served on a number of committees of the Medical Research Council as well as on the Research Advisory Group and Grants Committee of the National Cancer Institute of Canada. He is a member of the American Association for the Advancement of Science and the American and International Society of Cell Biology.

Dr. Simard succeeds Dr. Jean de Margerie who has been interim President since the death last may of the President, the late Dr. Malcolm Brown.

Miss Bégin stressed that Dr. Simard will be working full-time in his new post because of the importance of the Council's role in the field of medical research in Canada. The Council is directly responsible for determining the optimum use of a $61 million budget. This represents some 50 per cent of all funding for medical research projects in Canada. Last year a total of 1,300 projects were supported.

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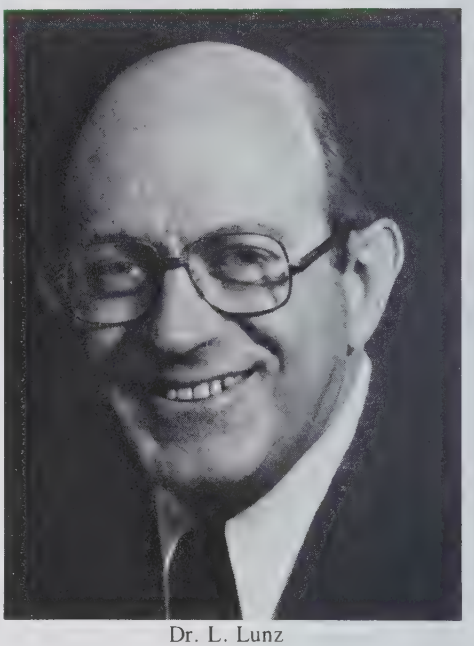
FORENSIC DENTISTRY COURSE AT DALHOUSIE WILL FEATURE INTERNATIONAL CLINICIANS

Dr. Lester Luntz of Hartford, Connecticut and Dr. Gordon MacDonald of Glasgow, Scotland will come together for an intensive continuing education course in forensic dentistry at Dalhousie University, Halifax, on November 20 and 21, 1978.

The course, open to all dental, law enforcement, legal and medical personnel, will present a very practical approach to dental identification. Dr. Luntz will discuss some famous case histories and explain a technique for dental identification using four basic steps: examination procedure, preparation of post-mortem records, securing ante-mortem records, and making the identification. Registrants will participate in a mock exercise using records and they will practice identification techniques on actual wet specimens and records. Dr. Luntz will also discuss the importance of radiology and photography in forensic dentistry. Dr. MacDonald will deal mainly with identification in criminal cases, discussing tooth fragments and dentures as evidence. He will concentrate on the role of bite marks, how to recognize, record and interpret their significance on bodies, live victims, food stuffs and miscellaneous effects. There will also be a practical exercise in bitemark identification. Dr. MacDonald will round out the course with a detailed discussion on the expert witness report and how this is used in a courtroom situation.

Dr. D. G. MacDonald



Dr. L. Lunz

Dr. Donald Gordon MacDonald is a senior lecturer in Oral Medicine and Pathology, University of Glasgow and an Honorary Consultant in Oral Pathology, Greater Glasgow Area Health Board. Dr. MacDonald has held various positions in Dental Histology and Pathology in Glasgow Dental Hospital and School; The Institute of Pathology, Glasgow Royal Infirmary; and the University of Illinois, Chicago, before his present position. He is a lecturer in Forensic Odontology in the Scottish Police Detective Training program and to the Scottish Police College and an Honorary Consultant in Forensic Odontology to the Strathclyde Police. As well, he lectures in forensic dentistry to undergraduate dental students and to honours year law students. He has conducted extensive research in forensic dentistry, much of which has involved bite marks and the criminal aspects of forensic dentistry. From this he has been recognized by the courts as an expert witness in forensic dentistry. His publications in forensic dentistry include topics such as bite mark recognition and interpretation, statistical problems in dental identification, post-mortem procedures and dentures as evidence. Dr. MacDonald holds the rank of Surgeon Lieutenant Commander (D) in the Royal Naval Reserve.

Dr. Lester Luntz is a clinical professor of Oral Diagnosis (Forensic Dentistry), University of Connecticut, School of Dental Medicine and Assistant Professor of Pathology (Forensic Dentistry) University of Pennsylvania, School of Dental Medicine. Dr. Luntz, as well as maintaining a general practice, is a consultant on Forensic Odontology to the Office of the Chief Medical Examiner, State of Connecticut; an insurance evaluator in Forensic Dentistry, and a consultant, Armed Forces Institute of Pathology, Walter Reed Army Medical Center, Washington, D.C. His many law enforcement affiliations include his position as Captain, Bureau of Identification, Connecticut State Police Academy and the Hartford Police Academy. Dr. Luntz has lectured to dental groups and law enforcement agencies around the world including the Canadian Police College, Ottawa. He has published in various areas including articles of the use of dentistry by law enforcement agencies, identification of bodies, dental radiography and photography in identification, and dental identification of disaster victims by a dental disaster squad. He has received an award from the City of Hartford for Outstanding Service; he is a Fellow in both the American Academy of Forensic Science and the Academy of General Dentistry and he holds a Board Certification by the American Board of Forensic Odontology.

For further information, contact Dr. D.V. Chaytor or Kaireen Vaison, Continuing Education in Dentistry, Dalhousie University, Halifax, N.S. B3H 3J5. Telephone: (920) 424-2277.

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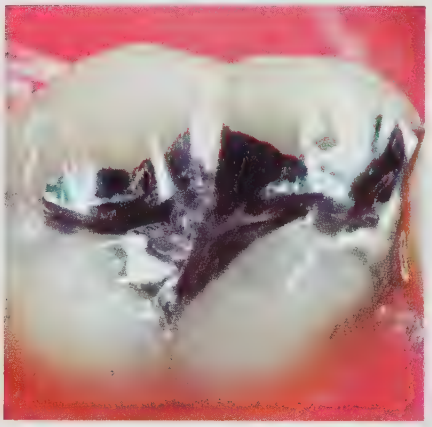

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1. Osborne, J. W., Swartz, M. L., Gale, E. N., and Phillips, R. W.: Clinical performance of ten amalgam alloys — a one-year report. A.A.D.R. Abst. No. 250, June 1977. 2. Young, F. A. and Johnson, L. B.: Strength of the tin-mercury phase in dental amalgam. J. Dent. Res., *46:* 457, 1967. 3. Holland, G. A. and Asgar, K.: Some effects on the phases of amalgam induced by corrosion. J. Dent. Res., *53:* 1245, 1974.

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CFDE WILL INVEST OVER $147,000 TO ADVANCE DENTISTRY IN 1978

At the Canadian Fund for Dental Education's recent annual meeting its ten member Board of Trustees approved grants totalling $147,200.

As in previous years, teacher training fellowships for dentists and dental hygienists accounted for a substantial part of the total grant budget.

Seven dentists who received CFDE support last year, reapplied for help to complete their graduate training. Three were awarded full fellowships ($5,000) and four half fellowships ($2,500). Twelve dentists applied for CFDE fellowships for the first time. Of these, two were awarded full fellowships and five half fellowships. These awards totalled $47,500.

Six dental hygienists applied for CFDE support. One was awarded a fellowship of $2,000 and four received fellowships of $1,000 each.

All recipients of CFDE fellowships make a commitment to accept a teaching position in Canada upon completion of their training or to repay the full amount of their award plus interest.

Each year the Fund offers a special award of $1,500 for an existent dental teacher. This year's recipient, Dr. David Donaldson of the University of British Columbia, will use the funds to help finance a period of special study in the Department of Anaesthesiology at UCLA.

Total cost of CFDE's 1978 fellowship program will be $55,000.

Other major awards

CDA's Student Table Clinic Program and Students' Conference	$11,700
ACFD/CDA Teaching Conference on Hospital Dentistry	$ 4,000
10th Biennial Conference on Dental Research and Education	$10,000
Ontario Dental Hygienists' Association Conference	$ 2,000
Ontario Dental Association Preventive Dentistry Conference	$ 1,500
To Investigate New Ways of Providing Better Dental Health Care	$ 3,000
Dental Research at the University of Toronto (to provide clinical benefits in the treatment of congenital malformations and mandibular fractures) — Funded by a Hospital for Sick Children Foundation Grant	$38,500
Special Teacher Training Assistance Provided by the Lorne E. MacLachlan Endowment Fund	$ 6,700
Grants to Dental Schools	$10,000
Scholarships for Undergraduate Dental Students	$ 5,000

Investments

As of December 31, 1977, the Canadian Dental Association retired the

Continued on page 354

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second mortgage of $300,000 CFDE held on its Ottawa headquarters.

In January 1978, Dr. Lorne E. MacLachlan made a generous additional gift of $55,000 to increase his already established Endowment Fund to $100,000.

After careful consideration the Trustees decided these funds should be invested in Royal Trust Company five-year investment certificates ($225,000) and in Government of Canada bonds maturing in 1980 ($130,000).

Nominations

Dr. John W. Neilson resigned as Chairman of the Board at the 1978 annual meeting. However, he will complete his term of office (which expires in 1979) as a Trustee.

Dr. James A. Guest of London, Ontario, who has been a Board member since 1974, was unanimously nominated to succeed Dr. Neilson as Chairman.

Dr. Henri Brouillet completed his final term of office and Dr. Robert Dupont of Montreal has kindly agreed to let his name stand in nomination as a replacement.

Messrs. Stanley O. Tebbutt and Alex S. Currie completed their first term and both were nominated for reappointment.

Dr. Ralph C. Burgess, who has served with distinction as a member of CFDE's Advisory Committee on Fellowship Selection and latterly as its Chairman, tendered his resignation. It was regretfully accepted and Dr. A. Murray Hunt was appointed to succeed him as Chairman.

The estimated operational income for 1978 is $230,000. This means that substantially increased contributions will be needed from all sources if CFDE is to achieve its objectives and end up with a balanced budget.

Small consolation

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Continuing benefits of water fluoridation have accounted for a dramatic increase in the number of teenagers completely caries-free, according to the Dental Disease Prevention Activity of the Center for Disease Control in Atlanta.

According to the report, various studies in the last 30 years have shown benefits from adjusted fluoridation increase during lifetime exposure.

Conservative estimates indicate 20 per cent of teenagers in a fluoridated community will be caries-free.

Ontario Society of Orthodontists

The Ontario Society of Orthodontists recently announced its new slate of officers for the 1978-79 term. Members of the executive are: Dr. Randy Lang, past president; Dr. Don Gilbert, president; Dr. John Jenkins, vice-president; and, Dr. Ray Bozek, secretary-treasurer.

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Reprints available on Oral Cancer feature

The March, 1974, issue of the CDA Journal featured a highly acclaimed special report on Cancer of the mouth. The report was comprised of a series of seven articles dealing with various aspects of oral cancer and written by top dental specialists from across Canada. Two pages of four-colour photographs illustrating typical lesions of the oral cavity were also part of this feature section.

Reprints of this special report on cancer of the mouth may be obtained, free of charge, by writing to: The Canadian Dental Association, Bureau of Public Information, 1815 Alta Vista Drive, Ottawa, Ontario K1G 3Y6.

New tariff ruling

The minister of Revenue Canada, Senator J. P. Guay, has announced that all porcelain powders imported into Canada will now be admissible duty-free under Tariff item 68800-1. Formerly, porcelain powders were subjected to a 15 per cent Tariff.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on July 31, 1978:

Common Stock Fund	$33.389
Fixed Income Fund	$21.423
Guaranteed Fund	$14.845
Balanced Fund	$10.665

Total assets (market value) of the plan were $30,649,967.85.

The previous month's figures, as of June 30, 1978, stood as follows:

Common Stock Fund	$31.401
Fixed Income Fund	$21.159
Guaranteed Fund	$14.749
Balanced Fund	$10.333

Total assets (market value) of the plan were $29,980,638.86.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

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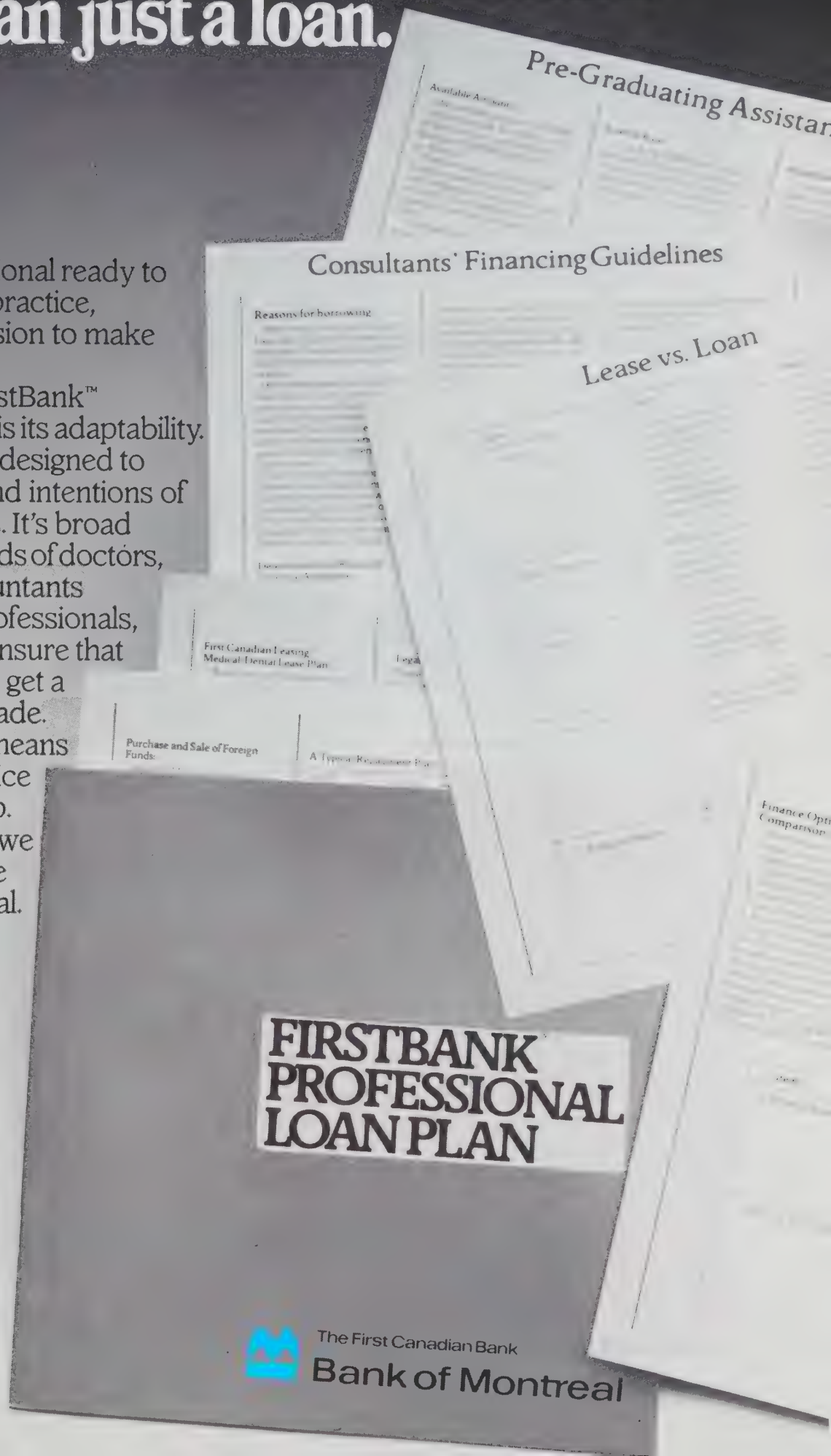

NEW SCHOLARSHIPS FOR DENTAL STUDENTS

CFDE Trustee Dr. Henri Brouillet has announced that, starting with the 1978/79 academic year, two $250.00 scholarships for dental students will be offered in each of the ten dental schools in Canada. These scholarships will be known as "Canadian Fund for Dental Education Scholarships sponsored by Cooper Laboratories Limited".

The scholarships will be awarded annually to the 2nd and 3rd year student with the highest marks and showing a special interest in the field of preventive dentistry.

In addition to supplying the funds for these new scholarships, Cooper makes a substantial annual contribution in support of CFDE's other programs to promote good dental health.

"CFDE is honoured to be associated with Cooper Laboratories Limited in this new program that will provide both encouragement and financial assistance for dental students in every Canadian school," said Dr. Brouillet.

UNIVERSITY OF CONNECTICUT APPOINTMENT

The University of Connecticut's School of Dental Medicine has announced the appointment of Dr. Avrum R. Goldstein as Assistant Clinical Professor of Periodontics and Clinical Director of Graduate Periodontics at the University of Connecticut Health Center in Farmington, Connecticut.

Dr. Goldstein is a 1971 graduate of the University of Manitoba's Faculty of Dentistry and a 1975 graduate of the University of Pennsylvania, School of Dental Medicine, Division of Advanced Dental Education (Periodontics). He has held previous teaching appointments at the University of Manitoba and the State University of New York prior to his joining the Department of Periodontics at the University of Connecticut Health Center in 1976. For the past two years he has been involved in undergraduate teaching in periodontics.

Dr. Goldstein has practised in Winnipeg and Toronto and will continue to maintain his present practice, limited to periodontics, in New Haven. He is also on staff at the John Dempsey Memorial Hospital, in Farmington, and the Yale-New Haven Hospital, New Haven.

CDA EXPANDS EXISTING FILM SERVICE

In a continuing effort to expand the services offered to its members, the Canadian Dental Association has taken out membership in the National Film Library of Canada. As a result of this, CDA members are now entitled to unlimited rental privileges of all National Library films and access to all other services provided by the NFL.

CDA members wishing to take advantage of this new service are requested to fill out the application form below so we can send you our NFL membership number (which must appear on all requests for NFL services) along with additional information on how to obtain films, catalogues, etc.

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Dr. J. S. Christie

Nova Scotia dentists elect new president

Dr. John S. Christie of Halifax is the newly-elected president of the Nova Scotia Dental Association.

A 1971 graduate of the Faculty of Dentistry at Dalhousie University, Dr. Christie operates a general practice in Bedford. He is a part time staff member of the University's Department of Restorative Dentistry and is on courtesy staff at the Izaak Walton Killam Hospital for Children.

Dr. Christie attended the first CDA-sponsored Dental Students' Conference in 1969 and became actively involved in organized dentistry in 1972. His father, Dr. P. S. Christie, was president of the Canadian Dental Association in 1965.

Canadian accepts post at Washington Faculty

Dr. John Townsend, a 1967 dental graduate of McGill University, Montreal, has been appointed Chairman of the Department of Restorative Dentistry at the University of Washington's Faculty of Dentistry.

Dr. Townsend entered graduate school at the University of Washington in 1971 after a period in private practice. He received his MSD degree in 1973 and returned to McGill where he was appointed assistant professor in Fixed Prosthodontics. He was made Chairman of the Department in 1974 and was promoted to associate professor in 1975, a post he held until he joined the faculty of the University of Washington in January, 1978.

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The only change after over 80 years of service to Canadian dentists is that today we have to listen harder to keep ahead of the game. And we insist on keeping ahead. That's why the best person to listen to is you because the new techniques, equipment, products and service that we offer today have all grown out of our listening to you and your problems in the first place.

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SYMPOSIUM TOPIC: ADVANCES IN CLINICAL PERIODONTOLOGY

Tel-Aviv University School of Dental Medicine and the Toronto Alumni Chapter of the Alpha Omega Fraternity have announced the International Symposium on Recent Advances in Clinical Periodontology to be held at Tel-Aviv University Dental School, Israel, in October 1978.

The main subjects will be presented by: Prof. Jan Egelberg, Department of Periodontology, School of Dentistry, Malmo, Sweden; and Prof. Max A. Listgarten, Department of Periodontics, Center for Oral Health Research and School of Dental Medicine, University of Pennsylvania, U.S.A.

Some of the titles to be presented include:

1. Efficiency of plaque control programs for the adult patient
2. Subgingival scaling versus periodontal surgery in periodontal therapy
3. Reattachment potentials of the periodontal tissues
4. Maintenance therapy and long-term prognosis after periodontal treatment
5. Development and structure of periodontal tissues
6. Development and structure of the periodontal flora
7. Current views on the histopathology of the gingival lesion
8. The Gingival Sulcus and Pocket: Histological and clinical considerations.

For a complete program, information and application, contact: The Secretary, School of Dental Medicine, Tel-Aviv University, Ramat-Aviv, Tel-Aviv, Israel, or Dr. Hart Levine, 2006 Bathurst St., Toronto, Ontario, M5P 3L1. Telephone (416) 781-2006.

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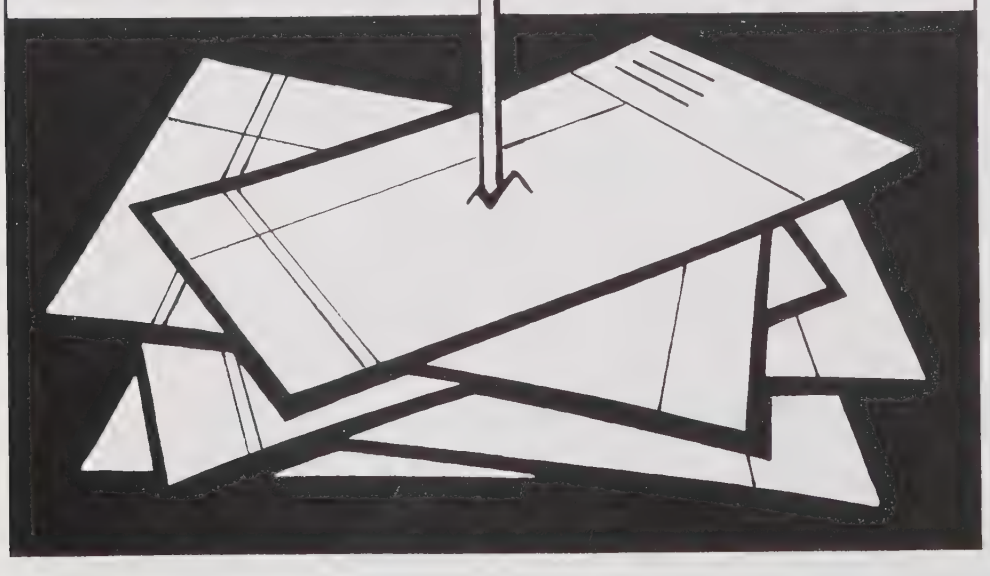

Deaths

Beaudet, Paul-Emile, 71. Ville Mont-Royal, Quebec. University of Montreal, 1933. 15-6-78.

Botting, Dorwin, 78. Norwood, Manitoba. Royal College of Dental Surgeons, 1924. 8-7-78. Survived by Ethel (wife), Dwight (son) and Bettie-Marie (daughter).

Foster, Richard Gordon, 60. Chilliwack, British Columbia. North Pacific Dental School 1942. 2-6-78. Survived by Peggy (wife) and children.

Goodfellow, Joseph Sterling, 64. Calgary, Alberta. University of Toronto, 1951. 6-78. Survived by wife.

Haber, Harold E., 78. Montreal, Quebec. McGill University, 1937. 7-78.

Létourneau, Anicet, 55. McMasterville, Quebec. University of Montreal, 1937. 5-7-78. Survived by Jeannine (wife).

Medical Research Council Dental Training Grant

Under the terms of a Medical Research Council Grant a dental training program is being offered at the Faculty of Dentistry of the University of Toronto.

Two openings are available each year for Canadian graduate dentists interested in research in the clinical dental sciences and a dental specialty qualification. It is designed to provide research trained clinical teachers for Canada. Curriculum covers a minimum of four years including at least three years devoted to training in research leading to a Ph D degree. Funded by the Medical Research Council, the program provides successful applicants with awards equal to those of MRC Professional Fellows.

Applications and further information can be obtained from: Dr. A. M. Hunt, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto, Ontario, M5G 1G6.

LETTERS TO THE EDITOR

Elephant Tusks

The news story in the June, 1978, issue of the CDA Journal regarding the Golden Jubilee Gift to the University of Alberta lists the length of the elephant tusks as 12.7 and 13.0 metres respectively. I am sure an error has been made here. I was born and raised in the part of India where there is a large elephant population and the measurements listed are unheard of.

J. F. Chithalen, DDS
Hamilton, Ontario

In response to Dr. Chithalen's observation that there must be an error in the reported lengths of the elephant tusks presented as a Golden Jubilee Gift to the University of Alberta (J. Can. Dent. Ass. Vol. 44, No. 6, p. 248), I am pleased to advise you that Dr. Chithalen is correct in drawing attention to an error. The correct lengths of the tusks are 1.27 m and 1.30 m respectively, and not 12.7 and 13.0 metres as reported. The error arises from misplacement of the decimal point, one of the pitfalls of our newly adopted metric system!

Of related interest is the fact that the longest recorded tusks are those of the extinct woolly mammoth (*Mammuthus primigenius*) in whom tusks 4.8 metres (14 feet) in length have been recorded. In extant elephants an African bull elephant's tusk of 3.5 metres (11½ feet) length has been recorded. (Sperber: "Tusks", J. Can. Dent. Ass. 42: 257, May, 1976).

G. H. Sperber, BSc, BDS, MS, PhD
Professor of Oral Biology,
Faculty of Dentistry,
University of Alberta

Second International Dental Congress on Modern Pain Control

London, England (13 – 16 July 1979)

sedation, anaesthesia and analgesia in dentistry
S·A·A·D 79
London 1979

The Society for the Advancement of Anaesthesia in Dentistry, in collaboration with the ADSA, American SAAD, Australian SAASD, Federation des Societes Europeennes de Narcodontologie, Irish SASD. Japanese Dental Society of Anesthesiology and the New Zealand SSAD, is to present an International Congress in London at the Royal Lancaster Hotel

Theme: The control of apprehension, fear and pain

Registration and Official Reception 13 July
Three-day programme of lectures and free papers 14-16 July by international experts in the field of dental anaesthesia and sedation. Simultaneous translations, Trade Exhibition, Congress Dinner, Social programme for Associates
Group travel available from several overseas centres

The Congress Fee of £78 if paid before 31 December 1978 (£90 thereafter) is inclusive of Official Reception, lunches, coffee, tea each day

Open to all members of the dental and medical professions

Requests for detailed programme and application forms should be sent at once to
The Secretary, SAAD 79, 53 Wimpole Street, London, W1M 7DF, England.

EN 1978, LE FCED UN INVESTISSEMENT DE PLUS DE $147,000 DANS L'AVANCEMENT DE LA MEDECINE DENTAIRE

Lors de la dernière assemblée annuelle du Conseil de Fiducie du Fonds canadien pour l'enseignement dentaire, les dix fiduciaires ont approuvé des subventions s'élevant à un total de $147,200.

Ainsi que pour les années précédentes, les bourses de formation en enseignement destinées aux dentistes et aux hygiénistes occupaient une grande partie du budget total.

Sept dentistes qui avaient obtenu des bourses du FCED l'an dernier ont renouvelé leur demande d'assistance financière afin de pouvoir terminer les études post-universitaires. Le FCED a octroyé à trois d'entre eux des bourses entières ($5.000) et aux quatre autres, des demi-bourses ($2.500). Douze dentistes ont fait une première demande: parmi ces derniers, deux ont obtenu une bourse entière et cinq, une demi-bourse. En tout, ces bourses s'élevaient à $47.500.

Six hygiénistes dentaires ont également sollicité l'appui du FCED. L'une d'elles a obtenu une bourse de $2.000 et quatre autres, une bourse de $1.000.

Tous les bénéficiaires de bourses du FCED s'engagent à accepter un poste d'enseignant au Canada lorsqu'ils ont terminé leur stage de formation ou à rembourser la totalité de la bourse plus l'intérêt qui s'y attache.

Chaque année le Fonds offre une bourse spéciale de $1.500 à un enseignant dentaire. Le bénéficiaire de cette bourse était, cette année, le Dr David Donaldson de l'Université de Colombie Britannique, qui se servira de ces fonds pour l'aider à financer une période d'études spéciales du Département d'anesthésiologie à UCLA.

En 1978, le coût total des bourses offertes par le FCED s'élèvera à $55.000.

Autres importantes subventions

Programme de tables cliniques des étudiants et congrès des étudiants de l'ADC	$11.700
Congrès d'enseignement AFDC/ADC en médecine dentaire à l'hôpital	4.000
10ème Congrès biennal de la recherche et de l'enseignement dentaires	10.000
Congrès de l'Association des hygiénistes dentaires de l'Ontario	2.000
Congrès de médecine dentaire préventive de l'Association dentaire de l'Ontario	1.500
Investigations de nouvelles méthodes destinées à améliorer les soins dentaires	3.000
Recherche dentaire à l'Université de Toronto (destinée à trouver des solutions cliniques de perfectionnement du traitement de malformations congénitales et de fractures mandibulaires) — Financée à l'aide d'une subvention de la Fondation de l'Hôpital pour les enfants malades à Toronto)	38.500
Bourses spéciales pour la formation d'enseignants — A l'aide du fonds de dotation Lorne E. MacLachlan	6.700
Subventions aux écoles dentaires	10.000
Bourses aux étudiants dentaires non diplômés	5.000

Investissements

Au 31 décembre 1977, l'Association dentaire canadienne était en mesure d'éteindre la deuxième hypothèque sur son siège social à Ottawa, s'élevant à $300.000, détenue par le FCED.

En janvier 1978, le Dr Lorne E. MacLachlan a généreusement offert un don supplémentaire de $55.000, grâce auquel son fonds de dotation s'élèvera au total de $100.000.

A la suite d'un examen approfondi, les fiduciaires ont décidé d'investir ces fonds en certificats de placement de cinq (5) ans de la Compagnie Royal Trust ($225.000) et en obligations du gouvernement du Canada dont l'échéance se situe en 1980 ($130.000).

Nominations

Lors de l'assemblée annuelle de 1978, le Dr John W. Neilson a résigné ses fonctions de président du Conseil d'administration; il complètera toutefois son mandat (qui expire en 1979) à titre de fiduciaire.

Le Dr. James A. Guest de London, Ontario, membre du Conseil depuis 1974, a été unanimement nommé successeur du Dr Neilson, à titre de président.

Le Dr Henri Brouillet a terminé son mandat final et le Dr Robert Dupont de Montréal a aimablement accepté de mettre son nom en candidature, à tire de remplacement.

Messieurs Stanley O. Tebbutt et Alex S. Currie ont complété leur premier mandat et leurs noms ont été mis en candidature pour une seconde période d'activité.

Le Dr Ralph C. Burgess, qui s'est distingué alors qu'il siégeait au Comité consultatif sur le choix des boursiers du FCED et dernièrement, à titre de président du comité, vient de donner sa démission. Cette dernière a été acceptè à grand regret et le Dr A. Murray Hunt lui succèdera à titre de président.

Le revenu d'exploitation estimé pour 1978 s'élève à $230.000. Ceci signifie que pour que le FCED puisse réaliser ses objectifs tout en équilibrant son budget, il faut que les contributions en provenance de toutes les sources soient considérablement majorées.

FLUORATION ET CANCER

Les allégations portant sur la fluoration et le taux de mortalité due au cancer, faites par divers individus et groupes opposés à la fluoration des eaux domestiques ont reçu une considérable publicité.

Des scientifiques compétents, spécialistes dans le domaine de la découverte et du mesurage des effets que causent les facteurs de l'environnement sur la maladie et la mortalité, ont effectué des recherches qui démontrent qu'il n'y a aucune différence pour les statistiques correctes de mortalité due au cancer dans les localités à eaux fluorées en regard de localités à eaux non fluorées. Des rapports portant sur ces études ont été publiés par le National Cancer Institute et le National Heart, Lung and Blood Institute du U.S. National Institutes of Health; le Center for Disease Control; le Safe Drinking Water Committee de la National Academy of Sciences; de la Division de protection de la santé du Ministère de la santé et du bien-être social à Ottawa, Canada; du Royal College of Physicians, Londres, G.B. et de la Royal Statistical Society, Londres.

A titre de conclusion, ces organismes affirment que les taux de mortalité due au cancer ne sont nullement influencés aux États-Unis, au Canada ou en Grande-Bretagne par la consommation d'eau fluorée, que cette fluoration proviennent de sources naturelles ou par l'addition de fluorure.

Ces conclusions nous mènent à croire qu'il n'y a aucune raison de craindre davantage le cancer dans des localités à eaux fluorées que dans d'autres.

Le rapport canadien peut s'obtenir (en Français et en Anglais) à la Direction générale de l'hygiène du milieu, Parc Tunney, Ottawa K1A 0L2.

Le responsable à la fluoration à l'ADC

Lloyd H. Bowen

Nous remercions vivement Monsieur John S. Small, National Institute of Dental Research, Bethesda, Maryland 20014, pour toute l'aide qu'il nous a apportée.

NOUVELLES BOURSES POUR LES ETUDIANTS DENTAIRES

Le Dr Henri Brouillet, fiduciaire du FCED, vient d'annoncer qu'à partir de l'année universitaire 1978/79, deux bourses de $250.00 seront décernées aux étudiants de chacune des dix écoles dentaires du Canada. Ces bourses seront désignées les ''Bourses du Fonds canadien pour l'enseignement dentaire parrainées par les Laboratoires Cooper Limitée''.

Ces bourses seront accordées tous les ans à l'étudiant de 2ème et de 3ème année qui aura les meilleures notes et qui manifestera un intérêt spécial dans le domaine de la médecine dentaire préventive.

Outre les fonds pour ces nouvelles bourses, les Laboratoires Cooper font tous les ans une importante contribution aux autres programmes du FCED destinés à promouvoir la santé dentaire.

''Le FCED est fier d'être associé aux Laboratoires Cooper Limitée pour ce nouveau programme qui encouragera les étudiants dentaires de toutes les facultés canadiennes et leur offrira en même temps un certain appui financier'', a déclaré le Dr Brouillet.

Personne disparue

Lynda Ardle, âgée de 15 ans, a disparu en septembre 1977. Cette jeune patiente avait un rendez-vous pour faire enlever ses appareils d'orthodontie le 15 septembre 1977, mais elle n'était pas au rendez-vous, fait peu surprenant dans son cas. Elle est peut-être allée chez un dentiste ou un orthodontiste depuis, pour faire enlever lesdits appareils.

Information orthodontique: les quatre premières prémolaires de Lynda ont été extraites; elle porte un appareil de type edgewise au boîtier .018 et à fil rectangulaire. Elle avait encore une relation des dents postérieures de classe II, mais elle pouvait fermer (et fermait) en position antérieure à volonté.

Toute personne pouvant fournir des renseignements à l'égard de cette patiente est priée de se mettre en rapport avec: Monsieur Kenneth Ardle, c/o Monsieur Stephens, 17 Leawood Court, St. Catharines, Ontario, ou de téléphoner au (416) 728-3262.

Changement au tarif dounaier

Le Sénateur J.P. Guay, Ministre du Revenu Canada, vient d'annoncer qu'en vertu de la position 68800-1 du tarif douanier, toutes les poudres de porcelaine importées au Canada seront à l'avenir exemptes de droits de douane. Auparavant, les poudres de porcelaine étaient soumises à un droit de 15 pour cent.

ASSOCIATION INTERNATIONALE DE LA RECHERCHE DENTAIRE

Le nouveau président de l'Association internationale de la recherche dentaire (AIRD) invite la mise en oeuvre d'un programme d'information publique à l'échelle internationale, visant à publier les derniers progrès de la recherche dentaire destinés à perfectionner la prévention de la maladie dentaire.

Le Dr Finn Brudevold de Boston déclare: ''Notre Association et ses divers groupes perdent une excellente occasion de renseigner les personnes intelligentes de tous les pays, désireuses de savoir ce qui se passe, ainsi que d'éveiller leur intérêt.'' Soulignant que le concept de l'expansion de l'information publique n'est pas nouveau, il a ajouté: ''J'aimerais que cette idée soit mise à exécution et développée afin de comprendre la dissémination aux organes d'information de renseignements dignes d'attention en ce qui concerne le statut de la santé et de la prévention dentaire dans divers pays, ainsi que tout progrès dans le domaine de la prévention en général''.

Les commentaires du Dr Brudevold faisaient partie de l'allocution présidentielle qu'il a prononcée lors de la 56ème séance générale de l'AIRD tenue à Washington, D.C. du 16 au 19 mars.

Il a signalé que l'AIRD aurait intérêt à collaborer avec certains groupes, notamment l'Organisme européen de recherche sur les caries, la Fédération Dentaire Internationale et l'Organisation Mondiale de la Santé ainsi qu'avec les associations dentaires nationales, afin que le public soit au courant des activités et des importants progrès réalisés dans les domaines de la recherche et de la prévention.

Le Dr Brudevold fait également remarquer: ''Le fléau des caries continue à frapper la majorité des pays industriels; en outre, les caries augmentent et créent un problème de santé de plus pour les pays en voie de développement.'' Il insiste sur la promotion de programmes éducatifs à l'échelle internationale, destinés à informer le public sur les efficaces mesures préventives qui existent actuellement dans le domaine de la santé dentaire.

Le Dr Brudevold signale que les programmes de prévention contre les caries ont fait d'importants progrès dans trois pays scandinaves en dépit du fait que les eaux domestiques n'y sont pas fluorées.

''Ces programmes comprennent des suppléments de fluorure à partir de la plus tendre enfance, le rinçage hebdomadaire au bi-hebdomadaire (sous surveillance) de la bouche avec du fluorure pendant toute l'année scolaire, l'emploi de dentifrices fluorés, ainsi que l'enseignement de la santé buccale. L'évaluation annuelle des résultats stimule, à l'échelle locale, la motivation et fournit les données qui servent de base à l'établissement des programmes créés aux échelles régionale et nationale,'' explique-t-il.

Le Dr Brudevold signale que la médecine dentaire traverse une période de transition et que la procédure traditionnelle, soit principalement une concentration sur le traitement de la maladie dentaire, est aujourd'hui démodée. ''L'adoption de simples mesures préventives lors du traitement dentaire diminuerait la nécessité de services de réparation et les dentistes pourraient dispenser des soins efficaces à un coût inférieur et à un plus grand nombre de patients.''

En conclusion, le Dr Brudevold a invité l'AIRD à se charger de la direction internationale de l'information au public. Il estime que cet organisme doit également considérer où se situe le point de jonction de la science et de la politique.

''Nous devons employer tous les moyens possibles permettant d'accéder aux organes d'information car nous ne pouvons nous échapper du fait qu'à l'aide de nos connaissances spécialisées dans le domaine de la prévention, nous avons plus de responsabilité lorsqu'il s'agit d'influencer l'opinion publique que nos rangs ne pourraient indiquer'' a-t-il ajouté.

Le Dr Brudevold est chef du département de chimie au Forsyth Dental Center à Boston.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 juillet, 1978:

Fonds d'actions ordinaires	$33.389
Fonds à revenu fixe	$21.423
Fonds garanti	$14.845
Fonds de placement équilibré	$10.665

L'avoir total (valeur marchande) du régime s'élevait à $30,649,967.85.

Au 30 juin, 1978, les chiffres du mois précédent étaient les suivants:

Fonds d'actions ordinaires	$31.401
Fonds à revenu fixe	$21.159
Fonds garanti	$14.749
Fonds de placement équilibré	$10.333

L'avoir total (valeur marchande) du régime s'élevait à $29,980,638.86.

Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

La Société dentaire

La Société dentaire de Montréal vient d'annoncer les membres qui siégeront au Conseil d'administration pour l'année 1978-79: Président, Dr Laval Couture; Président-désigné, Dr Yvon Desmarais; Vice-président, Dr Michel Plamondon; Trésorier, Dr Emanuel Steverman; Secrétaire, Dr Jean-Guy Lahaie; Directeur du bulletin, Dr. Marcel Labelle; Trésorier-adjoint, Dr Jean Beauchemin; Secrétaire-adjoint, Dr Michel Brousseau; Aviseur, Dr Micheline Blain; Conseillers, Dr Gilles Bélisle, Dr Richard Taché, Dr André Huot et Dr Rémy Dupuis.

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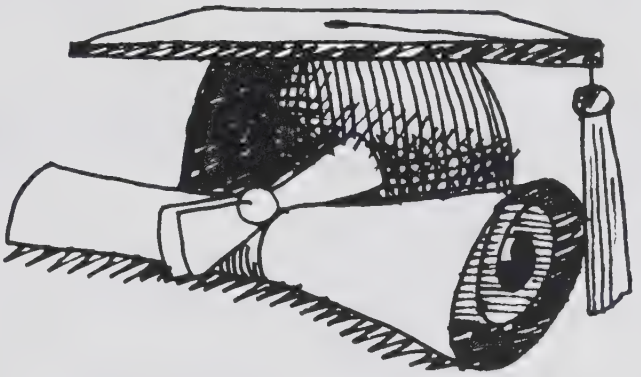

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Lorsque vous contribuez au Fonds canadien pour l'enseignement dentaire, vous participez à la protection des normes et du prestige de votre profession, car vous secondez les programmes du FCED qui portent sur l'enseignement et sur les soins dentaires. Si vous n'avez pas encore contribué au FCED cette année, veuillez envoyer votre don (déductible aux fins d'impôts) au:

Fonds canadien pour l'enseignement dentaire
Bureau 205
44 ouest, avenue Eglinton
Toronto, Ontario M4R 1A1.

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Un véhicule destiné à valoriser les réalisations
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Instructions to Contributors

The Journal of the Canadian Dental Association is currently soliciting research and clinical articles for publication. Interested contributors are asked to use the following outline of requirements when preparing manuscripts.

Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies — original and a carbon — typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, 8½ × 11 inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

Article Titles Make article titles descriptive but as concise as possible. Long titles discourage reading, present typographical and layout problems and create difficulties in library indexing.

References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. J Canad Dent Ass 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

Illustrations: Line and halftone illustrations should be of high quality for satisfactory reproduction.

Photographs — Handle photographs carefully. Do not bend, fold or use paper-clips. Photographs should be unmounted, untrimmed, good, sharp, black and white glossy prints, preferably not larger than 10 × 8 inches. Color work can only be published at the author's expense. Magnification of photomicrographs must always be given. Photographs must not be written on or typed on. On the back of each photograph, very lightly and in pencil, write the author's name, the figure number and indicate the top edge. If a figure contains two or more photographs, do not mount the parts; on the back of each photograph write very lightly in pencil the figure number and part letter (Figure 1a, etc.) and indicate the top edge. Patients must not be recognizable unless the written consent of the subject to publication has been obtained.

Drawings — Figures, graphs, charts and diagrams should be drawn and lettered in india ink. Lettering must be large enough to be read after the drawings are reduced to column width (small, simple drawings) or page width (larger, more complex drawings).

Legends — Figure legends should be typed as a group on a separate sheet. They should be separate from the text of the article and from the illustrations.

Tables: Each table should be typed on a separate sheet. Tables should be numbered consecutively and tailored to fit within column width or page width. Table title and table footnotes should be on the same page with the table. Do not show vertical rules in tables.

Permission and Waivers: These should accompany the manuscript when it is submitted for publication. Permission of author and publisher must be obtained for the direct use of material (text, photos, drawings) under copyright that is not your own. Up to one hundred words of prose material usually can be quoted without getting permission, provided the material quoted is not the essence of the complete work. Waivers must also be obtained for the publication of photographs showing persons, unless faces are masked to prevent identification. Waiver forms are available from the editor.

THE SIGNIFICANCE, IMPORTANCE AND METHOD OF DETERMINING THE DENTAL IQ OF A PATIENT

Donald S. Moore, DDS, FRCD(C), FAAOM
London, Ontario

This paper discusses the benefits of determining a patient's dental IQ. A questionnaire form is presented which can be used to classify patients as high, moderate or low dental IQ patients.

The purpose of this paper is to bring to the attention of the practitioner the reasons why it is necessary to determine a patient's dental IQ and also how to do so.

The dental IQ consists of many components, such as a desire, or lack of desire, to keep one's own teeth in a healthy state, an appreciation or lack of appreciation of the dentist's time, skill, knowledge and training, a cooperativeness regarding keeping appointments and being punctual, self-responsibility in caring for the oral cavity, and awareness or lack of awareness of *what* is required to carry out home care procedures, and the careful adherence or lack of adherence to the regimen outlined by the dentist and his staff.

In practice, the determing of a new patient's dental IQ is important for the following reasons:

1. To ascertain whether it will be easy or difficult to teach a patient a successful preventive control program. Its importance relates not only to learning the techniques of flossing and brushing, but to dietary and habit control which make greater demands.
2. To get through to the individual during the case presentation, what his problems are and their solutions and to help him accept the treatment planned.
3. To ascertain as much information about the patient as possible in order to determine what procedures are most useful in motivation. The more the dentist knows about his patients and what makes them "tick", the better he is able to motivate.[1]
4. To decide whether to put the patient on a holding program while his dental IQ is being raised, otherwise the effect of treatment will be transitory.
5. To choose a successful approach, as low dental IQ patients will be more difficult to motivate. Recognizing this fact reduces failures and disappointments and increases the proportion of success.
6. Dentists must not give up and drop their preventive programs because they do not know the implication of a low dental IQ. For example, the low dental IQ patient requires more time, and understanding. Visual aids, phase microscopes and disclosants have very little *long*-term impact and are less effective in the *short* term for a low dental IQ patient, with the exception of the disclosants, than for a patient with a moderate or high dental IQ.[2]

Dentists, who after a postgraduate course in periodontics return with enthusiasm to practise, soon lose their enthusiasm unless they learn to determine the patients' dental IQ and how to motivate them and, therefore, raise their dental IQ. If they fail to do this, their patients return after treatment with their mouths in about the same condition as before.

In order to succeed, a psychological approach utilizing extensive understanding of human behaviour is essential.[3] The power of emotional appeal is important. Even this becomes more effective when the patient's attitudes and beliefs about dentistry have been determined and changed.[4]

High dental IQ patients have a strong desire to preserve their teeth and place high value upon keeping their natural dentition in a healthy state. They appreciate the time, skill, knowledge and ability of the dentist. They co-operate by regular attendance and are prompt and reliable. Their attitudes and beliefs about dentistry are positive, and they successfully carry out their maintenance therapy as outlined. Their bills are paid promptly and they are boosters of the type of dentistry practised. There is a high-trust, low-fear factor. They do not eat sweets between meals and refrain from eating other plaque producing foods. They are psychologically easy to treat, and contribute to the dentist's enjoyment of his practice and sense of attainment and fulfilment.

The moderate dental IQ patients take a little more out of one psychologically, until they reach a high-trust, low-fear plateau. They take a little more time to pay their bills and require more time and effort and more motivation than high dental IQ patients.

The low dental IQ patients require an entirely different approach: greater emphasis on motivation, repeated skill learning sessions and more reinforcement. High dental IQ patients frequently require two or three skill learning sessions and are turned off by unnecessary sessions; however, the low dental IQ patients may require a dozen lessons before they "get in the habit". Such patients require a great deal of effort to raise their dental IQ — but it can and must be done, as many good patients start off in this state.

The lower the patient's educational attainment, the more difficult it is to raise his dental IQ.[5] Also, because of conditioning by past environment, heredity and upbringing, there are patients who are uneducable.[6]

It is wise to put patients with a low dental IQ on a holding program prior to treatment, excluding emergency treatment,

i.e. a five-day plaque control program, followed by visits that are one week, three weeks, six weeks and three months apart. The patient can then be shown what he/she can accomplish by good oral hygiene.

Other indications of a low dental IQ are the following:

1. A lack of interest or reluctance to answer questions or to fill out the health and attitude questionnaire forms.
2. If the literature you gave to the patient is either left in the waiting room or stuffed in the ash tray disposal at the elevator.
3. A patient who belittles another dentist, for real or imaginary reasons, rarely proves to be a good (periodontal) patient.

How do you determine the dental IQ of your patients and their attitudes and beliefs about dentistry?

The following questionnaire has three main components. The first part is to determine the dental IQ, the second, the patient's attitudes and beliefs and the third is to educate the patient. It is extremely important that the staff discuss the answers to the questions with the patient in order to get him to *think,* determine his priorities and change negative attitudes and beliefs about dentistry. The dentist stimulates the patient to think and finds out what he/she thinks by asking in a mild, non-condemning manner — Why? When? How? What? to the following questions.

To ascertain only the dental IQ, the answers to the first six questions will suffice. Assign a plus one for the correct answer and a minus one for the wrong answer. A high dental IQ patient will have a plus 6, while a low IQ patient will have a minus 3 or more.

The questionnaire was completed by 10,000 patients in the author's private practice. There was a high degree of correlation between the answers and the dental IQ of the patients when assessed by examination of their mouths and more detailed questioning about their dental awareness. The patient may know the answers to some questions but not have a corresponding dental behaviour.

An example of an educational question would be Question 18, certainly one to which the dentist would expect only a few patients to know the answer.

1. How long since your last visit to a dentist? _____ _____(e.g. What is the reason for not seeing a dentist for two years?)
2. What was done for you at that time? (Was it an extraction and for what reason? Or another emergency procedure?) _____
3. How often do you visit a dentist? _____
4. How often do you brush your teeth and when? _____ _____ Do you use dental floss regularly? yes____ no____
5. Do you wish complete mouth treatment or just fillings and extractions? _____ Why? _____
6. Do you feel that you would be satisfied with complete upper and lower dentures? yes____ no____ Why? _____
7. Does food catch between your teeth? yes ___ no_____ If so, where? _____ (The low Dental I.Q. patients may say "no" but examination reveals there is food caught between their teeth.)
8. Have you had your teeth x-rayed regularly, and has all treatment recommended by your dentist been completed? yes____ no____
9. Have you had a complete examination of your mouth within six months? yes____ no____
10. Have you had any teeth extracted?
    — due to an accident?
    — due to decay?
    — due to gum disease?
    (Tell me about it!)
11. Did you know that after the age of 35 more teeth are lost from periodontal disease than from decay? yes____ no____
12. Are you satisfied with the appearance of your teeth? yes____ no____ If not, why not? _____
13. Do you know that tartar usually forms under gums if your gums bleed? yes____ no____
14. Have you ever had professional instruction in home care? yes____ no____
15. If you have missing teeth, was it ever suggested that they be replaced? yes___ no___
16. If they were not replaced, why not? _____ _____
17. Have you had any adverse dental experiences? yes____ no____
18. Do you understand the meaning of "traumatogenic occlusion"? yes____ no____
19. Do you know extensive destruction of bone under the gum can take place without the patient being aware of it? yes____ no____
20. How often do you have your teeth professionally cleaned? _____ _____

Some of the questions obviously are related to previous dental care and reflect either the patient's or dentist's attitudes and thinking about dentistry. These questions, however, can be used to determine the patient's present or past attitudes and beliefs so that, if necessary, they can be changed and the patient re-educated and motivated.

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SHOULD A PREREQUISITE FOR ACCEPTANCE INTO DENTISTRY BE A HIGH DENTAL IQ?

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Choosing students with high dental IQ's, along with academic achievement and aptitude tests, would be most beneficial for all concerned. Eventually, a psychological test should be added to the above three to determine the applicants' motives for taking dentistry, how strong are their desires to benefit their fellow man and their ability to relate to and communicate with people.

The purpose of this paper is to consider the advantages of choosing high dental IQ applicants. In 1972, Cowan, Reid and Fish[1] stated that:

> "Dental educators as a group, public declaration to the contrary, have not yet shifted their focus of teaching to preventive dentistry and particularly to the promotion of good dental health practices by the individual."

Beube[2] and Binnie et al[3] reported separately on the poor oral status of dentists in the United States and the United Kingdom.

At the World Workshop in Periodontics,[4] it was stated that "The profession seems to be failing in its responsibility, as over 40 per cent admit that they do not attempt to educate patients routinely in their offices, much less the community." As far back as 1898, an editorial in *Dental Cosmos* made a similar lament. If the dentist does not make a distinction between low and high dental IQ patients, and if the application of the behavioural sciences to dentistry and how to motivate have not been taught, the dentist may not have tried or may have given up trying to educate patients. The low dental IQ of some dental applicants, which does not change after graduation, may be responsible for the fact that the profession does not instill into its patients an awareness of the importance of preventive dentistry.

One would expect that students commencing dentistry would have a high dental IQ. A study of seven first-year classes[5] showed that upon entering dental school, 60.7 per cent of students had low dental IQ's, 35.29 per cent were barely adequate, and only four per cent had high IQ's. The students' low dental IQ's, coupled with their lack of awareness of their problems, greatly contributed to the difficulty in motivating them, changing their negative attitudes and incorrect beliefs and developing a philosophy of prevention. The majority of students had pre-conceived ideas that dentistry consisted of fillings, extractions and dentures.

This defect could be corrected if the applicants had to spend two weeks in a dental office prior to acceptance (as do applicants for a dental nursing program) to determine whether or not they were going to enjoy working in their chosen profession. Similarly, they should submit the results of a complete dental examination by their own dentists (on forms provided by the dental school) like an RN applicant who must submit chest radiographs and medical examination results.

In the above study, 82.98 per cent of the first-year dental students recorded that they had not visited their dentists within six months prior to starting dentistry and of those who had, only two thirds (66 per cent) had the treatment completed. Many of the students did not know that they had a dental problem. Yearly cavity detecting radiographs (bite wings) had been taken for 36 per cent and only 15 per cent had had a regular prophylaxis. The regular prophylaxis is an excellent time to remotivate patients and discover early abnormalities, such as early recessions, occlusal problems, caries and periodontal pockets — an important preventive service.

The question then arises — if two dental applicants have exactly the same scholastic and aptitude test results, should the one with the highest dental IQ be chosen for acceptance into first year dentistry? There are approximately 10 times as many applicants as there are openings in many dental schools.

The advantages of choosing high dental IQ students are:

1. They are easier to motivate to take care of their own mouths, and therefore less time would be required to raise their dental IQ to an acceptable level. There is a close correlation between the dentists who take excellent care of their own mouths and those who provide an effective preventive program for their patients. Thus, in practice, more patients would benefit from preventive programs.
2. The need for and cost of more comprehensive dental care would be reduced.
3. Some students, even after four years of dental school, who were followed up over that period of time did not carry out personal plaque removal procedures. Thus, they would not be included among the first-year students, ensuring a higher success rate.
4. When a dental student personally practises good oral hygiene, he is much more enthusiastic and capable of influencing his or her patients to do likewise. Jacobi[6] has advocated for some years that good dental health should be a requisite for graduation.
5. Patients and dental students who are unorganized do not carry out preventive programs.[7] The unorganized stu-

dents would be eliminated, as they cannot organize their time effectively and, consequently, are unproductive. If they graduate, their practice is usually of an emergency type, that is crisis orientated. They neither provide complete thorough health care programs for patients (with all the unfortunate sequelae of piecemeal dentistry) nor do they do complete treatment planning.

One reason it was much more difficult and took longer to motivate the dental students with low dental IQ's can probably be traced back to their pre-university environment, which included lack of emphasis by their parents in carrying out proper oral hygiene procedures, parental lack of appreciation of the importance of a healthy mouth and a healthy natural dentition and the parental example and attitude of "get all your teeth out and your troubles will be over."

It was a long and difficult process to get some of the students to change their concepts. Some dental students had applied to three or four other faculties and accepted the first offer, without having the burning desire to become dentists, nor did they know what the practice of dentistry was all about.

It was most enlightening and fascinating to have determined some of the attitudes and beliefs of the first-year students and to have studied the ease or difficulty with which they were changed over the four years of dentistry.[5]

It was found in the same study that male students were more difficult to motivate than the females, as the latter are more fastidious. Lack of financial involvement on the part of the students (unlike a patient in practice) was another problem in motivation, as free advice is seldom appreciated.

Each week the students received a different educational pamphlet to be kept in a looseleaf book for patient education and for case presentation in oral diagnosis and in the main clinic.[5] The students were responsible for learning the information in the pamphlets and were advised that they would be questioned on it in a mini test. Since low dental IQ patients frequently do not read educational pamphlets, it is advisable to make sure that any literature is read in the office prior to their appointments or before leaving the dental office. Pamphlets, which should carry a short, to-the-point message, act the part of a third uninvolved party which reinforces what the staff is teaching.

At the present time, negative attitudes and incorrect beliefs about dentistry can be more rapidly and effectively changed by a series of personal discussions between students and staff — worthwhile but very time-consuming for staff who are experts in motivation.

In a 32 hour personal dental preventive program started in first year and carried on in second year, it was found that the rate at which student concepts changed varied extensively. Some had great difficulty in changing over the four years, while some never did change.

For a preventive program to be successful, the dentist/student must have enthusiasm, knowledge and an understanding of what makes patients react the way they do, so that he/she can get them to *think*, appeal to their self-interests, so that the patients will accept their responsibility for maintaining a healthy mouth, get them into action and persist with plaque and dietary control until it becomes a habit. Frequent reinforcement is a must. The long-lasting motivating effectiveness of disclosants, phase microscopes, audio visual and written material increased in accordance with the increasingly high levels of dental IQ of the patients. These procedures by themselves were insufficient to "turn on" most low dental IQ patients and students, particularly if they did not realize the importance and value of their teeth, and had negative attitudes and incorrect beliefs about dentistry.

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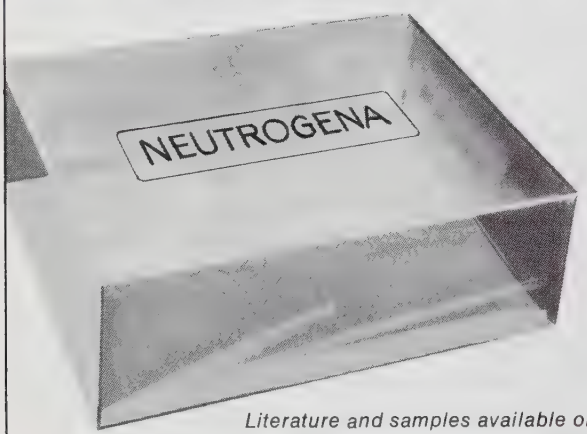

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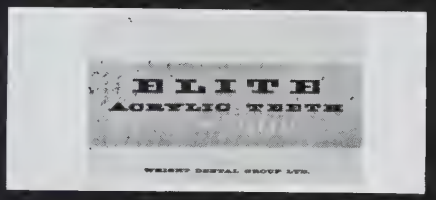

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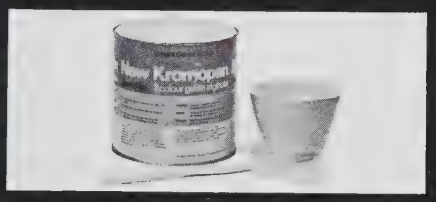

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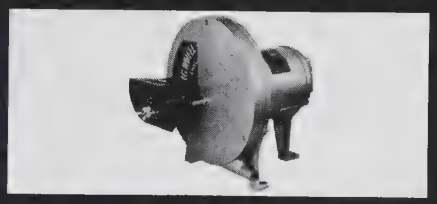

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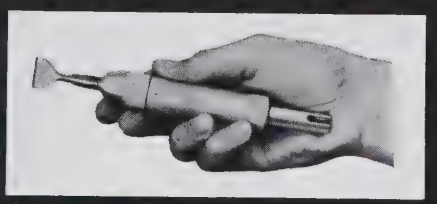

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TAURODONTISM, SHOVEL-SHAPED INCISORS AND THE KLINEFELTER SYNDROME

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This article describes the dental and oral findings in three cases of the XXXXY variant of the Klinefelter syndrome and emphasizes the need to consider the diagnosis of this syndrome in males exhibiting taurodontism. Males exhibiting this dental anomaly should have chromosomal studies performed.

Taurodontism is a morphological variation of molar and sometimes premolar teeth in which the pulp chambers are larger than normal, with the floor of the pulp chamber and the furcation area being apical to their usual positions (Fig 1). The affected tooth generally lacks a constriction at the cervical line. The relative size of the pulp chamber and the level of its floor vary somewhat among taurodont teeth.

Shovel-shaped incisors refer to teeth with prominent marginal ridges, resulting in an accentuated concavity of the lingual surface (Fig 2). Carbonell[1] has studied the frequency of this feature in different populations. Eskimos, Japanese, Chinese and Tibetans have a very high incidence of shovel-shaped incisors, while this characteristic is present in fewer than a third of most European peoples.

The normal sex chromosome constitution of the human male is XY. In the Klinefelter syndrome, which occurs once in approximately 400 to 600 male births, the sex chromosome constitution includes one or more extra X chromosomes so that the affected person may have XXY, XXXY, or XXXXY karyotypes or mosaic karyotypes such as XXY:XXXX and XY:XXYY. An XXYY type also exists.

There is some variation in the clinical features of patients classified as having the Klinefelter syndrome. The most common XXY type individual has a tall, thin body build with long legs and arms, small testes with aspermatogenesis, female distribution of pubic hair, and in some cases, gynecomastia. The features of the XXXXY syndrome are more severe. They include profound mental retardation, underdeveloped genitalia, prognathic jaw in about half the cases, and hypertelorism.

The purpose of this article is to describe briefly the dental and oral findings in three cases of the XXXXY variant of the Klinefelter syndrome, and to emphasize the need to consider the diagnosis of the Klinefelter syndrome in males who exhibit taurodontism.

Case reports.

The oral and dental findings of the three patients studied are listed in Table 1.

Discussion

Taurodontism is a rare finding in modern Caucasian man but in recent years there has been an increased interest in its occurrence. It has been reported as a familial trait,[2] associated with hypodontia,[3] amelogenesis imperfecta,[4] and a number of syndromes which are discussed by Witkop.[5]

Many patients with the Klinefelter syndrome exhibit taurodontism but it is not a constant feature of this syndrome.[6] It appears to be proportionally more common in those Klinefelter patients exhibiting several extra X chromosomes,[6,7] that is the XXXY and XXXXY variants. than in those exhibiting only one such extra chromosome. In view of the relationship of taurodontism to the Klinefelter syndrome, male patients exhibiting taurodontism should have chromosomal studies performed. This is particularly true of patients with a non-specific diagnosis of mental retardation and those with tall, thin builds, long arms and legs, and prognathic jaws.

The incidence of taurodontism in the Klinefelter syndrome is not known precisely. The matter is complicated in that many of these patients have multilated dentitions, as in two of the present cases. There is no way of knowing in a

Fig 1 Case 1 — Radiograph of a taurodont molar

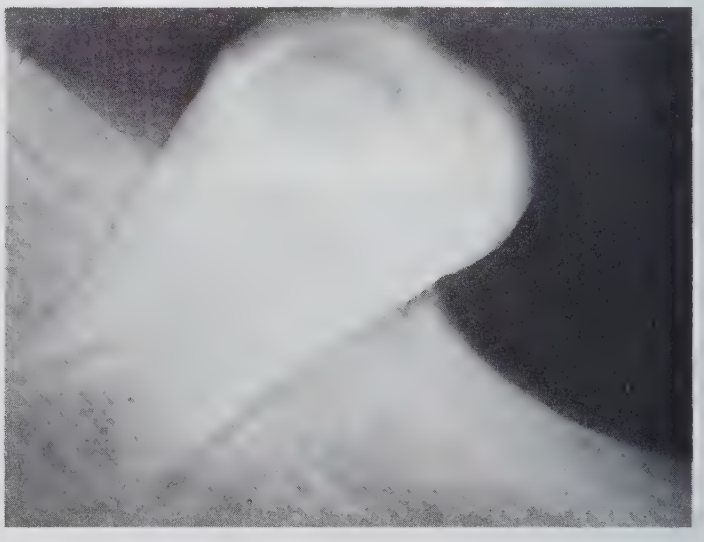

Fig 2 Case 3 — Shovel-shaped maxillary permanent right central incisor. The marginal ridges are prominent, resulting in accentuated concavity of the lingual surface and accounting for the reference to a shovel.

specific patient whether previously extracted teeth were taurodont unless earlier radiographs are available.

It is interesting to note that Keeler[8] has reported a high association of shovel-shaped incisors in patients with the Klinefelter syndrome and taurodont teeth. The findings in the patients reported here support this relationship.

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Reprint requests to Dr. Gardner.

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The oral and dental findings in three patients with XXXXY aneuploidy — Table 1

CASE 1 27 years old

Present dentition $\frac{17,16,15,13,12,11 \mid 21,22,23,24,26}{47,44,43,42,41 \mid 31,32,34,37}$

Shovel-shaped incisors: Teeth Nos. 11,12,21,22
Taurodontism: Tooth No. 47
Tooth No. 37 was anomalous with three roots.
Torus palatinus and prognathic jaw.

CASE 2 10 years old

Present dentition $\frac{18,17,16,15,14,13,12,11 \mid 21,22,23,24,25,26,27}{47,46,45,44,43,42,41 \mid 31,32,33,34,35,36,37}$

No shovel-shaped incisors. Tooth No. 11 is T-shaped.
Taurodontism: Teeth Nos. 47,46,45
The panoramic radiograph was technically inadequate to evaluate the left side of the dentition.
Slightly prognathic jaw.

CASE 3 22 years old

Present dentition $\frac{17,16,15,14,53,13 \mid 21,23,24,25,27}{44,42 \mid 31,32,33,34,37}$

Tooth No. 11 had been extracted for periodontal reasons but was unavailable for study.
Shovel-shaped incisors: Teeth Nos. 11,21
Taurodontism: None in the remaining teeth
Torus palatinus and prognathic jaw.
Impacted and embedded: 31,32,33,34

FINANCIAL APPRAISAL OF ORAL INJURIES: A FORENSIC ODONTOLOGICAL EVALUATION

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This article discusses various factors to be considered in determining financial appraisal for oral injuries. The method of preparing an evaluation report and the importance of accurate office records are stressed.

One basis for the settlement of claims for alleged injuries, whether real or imaginary, is the evaluation report by the expert. In dentistry, there are two major categories to be considered:

1. Settlement of insurance claims. These include occupational, vehicular and sport injuries, assault, unintentioanl injuries — or what can broadly be described as "accidents".
2. Cases involving dental malpractice and/or negligence.[1] These involve acts of omission and/or acts of commission by the dentist and/or his employees.

Too few dentists are aware of the implications and impact of an evaluation report, and fewer still are cognizant of the proper terms and the factors to be considered in preparing such a report *properly*. The aim of this article, therefore, is to inform the general practitioner as to these important factors to enable him to better serve his patient.

The scope of this type of evaluation is part of forensic odontology (the science which utilizes dental and para-dental knowledge for the solution to certain legal problems). Another way of expressing this is that it is the proper handling of dental evidence for judicial purposes.

Review of the literature

The earliest sources of reference can be found in the French literature. Dechaume and Derobert's book, "L'expertise en Stomatologie"[2] mentions that employees have the right to compensation under the 1898 workman's compensation legislation. This law was assented to and became retroactive on July 8, 1907. A law sanctioned on November 25, 1916, gives similar compensation to war veterans who sustained injuries during the course of their employment. Mayet and Rey[3] published a schedule which established compensation for maxillary fractures, temporomandibular joint problems, loss of teeth and injuries to the tongue and cheek. The latter dealt exclusively with the permanent partial disability of the organs involved. McBride[4] established an occupational grading schedule of permanent disability to total body function. A professor of legal medicine, Maurice de Laet,[5] published a textbook in which he compared the French and Belgian data on evaluation of maxillo-facial injuries. A lengthy article was published by A. and H. Moulonguet[6] on evaluation of injuries of the maxilla, TMJ, tongue and teeth. The American Medical Association periodically publishes statistical data regarding the percentage of disability following injuries of the whole body with references for oral structures.

Contemporary views

Present day concepts regarding injuries to the masticatory apparatus differ greatly from the time Dechaume and Derobert wrote their book.[2] Diagnosis, methods and materials available, prognosis and preventive concepts differ greatly from what they were 40 years ago.

Today's dentist views the masticatory apparatus as a collection of different tissues which contribute to the whole as a functional entity. It involves bone, nerves, muscles, joints, glands, periodontal and other tissues and, lastly, the teeth.

Definitions

In order to understand what each system contributes to the whole, and how these factors can be translated into a meaningful monetary evaluation, several terms need to be explained. In essence, the following is the manner in which the Court views the masticatory apparatus. It is based upon dental, medical and legal precedents and present day concepts.

1. Permanent total disability
2. Permanent partial disability
3. Temporary total disability
4. Temporary partial disability
5. Disturbances in function
6. Static deformation
7. Additional risk
8. "Frail vessel"
9. Effect of treatment
10. Condition before the accident
11. Previous experience
12. Immediate cost of repair
13. Cost of replacement
14. Inflation
15. Occupation and social status
16. Esthetics

17. Age
18. Specialist and/or general practitioner
19. Pain and suffering — *Quantum Doloris*

Permanent total disability

The courts' traditional approach to this type of disability is one in which the plaintiff, because of the injuries sustained, is unable to earn a living. An illustration of this type of disability would be someone who, as a result of an accident, becomes fully and permanently paralyzed. As far as the masticatory apparatus is concerned, this is a rare occurrence and the newer concept (as proposed by certain dental experts) is that this type of disability should be interpreted as a functional inability of an organ to perform its duties, rather than an inability of a person to work. An example of a permanent total disability would be the ankylosis of the condyles. This would not prevent the plaintiff from earning a living, but would totally and permanently incapacitate him in as far as his masticatory apparatus is concerned.

Permanent partial disability

This type of disability is the most controversial. There are basically two schools of thought on the subject: one believes in attributing a disability in terms of whole body function, while another trend is to limit the disability to the masticatory apparatus. Some conversion tables[7] have been used to evaluate the percentage of disability of an organ in regard to the whole body. The influence of disability of the oral structures upon the whole body is still very controversial and is far from being accepted by all experts.

It would be rather cumbersome to go over the schedules which Dechaume and Derobert,[2] Mayet and Rey,[3] and de Montigny[8,9] have proposed on the methods and means used in establishing permanent partial disability. For this, the reader should consult the list of references at the end of this article.

It is worthy to note that there have been legitimate objections to each of the systems proposed. Among these are:

1. Too high a value is accorded to certain teeth while others are undervalued.
2. Most dental experts today agree that third molars are to be considered as rudimentary organs in the 20th Century Caucasian. Therefore the "normal" dentition for judicial purposes should be 28 teeth and not the former concept of 32 teeth.
3. The canines should be of greater value in terms of disability than are any other teeth in the mouth as they are the "cornerstone" of the mouth. Moreover, the canines represent the ideal support for replacement of adjacent missing teeth by either fixed bridgework or removable appliances.
4. The incapacity accorded to a missing tooth is lessened if it can be replaced by a removable or fixed appliance.
5. The masticatory apparatus can be evaluated at *either* 20 per cent of whole body function *or* as 100 per cent of itself without regard to the remainder of the body.
6. Any incapacity which would require the assistance of or correction by another specialist should not be evaluated solely by the dentist, e.g., (a) facial esthetic impairment requiring the intervention of a plastic surgeon; (b) speech impediment requiring the aid of a speech therapist; (c) physical handicaps which would require the assistance of a physiotherapist; (d) mental or psychological trauma resulting from an accident should be evaluated by a psychologist or psychiatrist.

The basis for permanent partial disability can be justified by the fact that no treatment will ever restore the patient to the original condition. A classic example of permanent partial disability is the loss of a tooth. Dentistry can only provide a substitute for the loss of physical integrity.

Temporary total disability

The transitional nature of this disability makes it a difficult problem to evaluate for compensation purposes. An example of this type of disability would be the time that a patient has spent in a hospital following injuries. During that period of time the patient could be fully disabled. Legal counsel will usually fix a sum to this entity based upon the patient's occupation, the length of time, etc.

Temporary partial disability

This is another question which legal counsel will normally endeavour to solve. When a patient has sustained a fractured jaw he could be totally or partially disabled, depending upon his occupation. The principal questions to be considered are: How long did the disability last? e.g. from the time of the accident to the time the treatment was terminated; and the second question; Was the disability reduced or eliminated, or has it now been increased to a permanent status?

Disturbances in function

The disturbances affecting the oral cavity may vary considerably in nature and may be seen in all the structures of the masticatory apparatus; for instance, fractures of the jaw which residually affect the opening of the jaw can be classified for judicial purposes as:

Limitation of opening — (a) mild limitation (2-3 cm); (b) average limitation (1-2 cm); and (c) sub-total limitation (0-1 cm).

Lateral deviation — (a) mild; (b) moderate; and (c) severe.

Depending upon the severity of the incapacity, a permanent partial disability may be calculated in percentage increments.

Static deformation

Deformation of the maxilla or mandible which results in a permanent partial disability can be classified as: (a) pseudo-arthrosis, (b) improper consolidation, (c) loss of substance.

Additional risk

Additional risk means that the accident may have increased the risk of losing additional teeth or having addi-

tional problems — such as devitalization — at a later date without having any effect at the present time.

"Frail vessel"

The courts recognize an entity described as "the frail vessel". It may be described as a condition whereby the patient was going to have the disability at some point in time without the accident, but the accident accelerated the timing of the condition.

Effect of treatment

Dentistry has evolved to the point where conditions which were once considered hopeless can now be treated successfully. It is axiomatic however, that in order to restore the dentition to the previous condition, it may be necessary to involve and prepare some or all of the remaining healthy teeth, thus creating a handicap and an additional permanent partial disability. This additional handicap should also be evaluated.

Conditions before the accident, and previous experience

The patient's dental history is a factor not to be neglected. Some experts believe that a patient who has received regular dental treatment is entitled to a larger fixed amount of settlement than one who has not. Past dental records as well as an objective examination of the patient's present oral condition may be important in this assessment. Questioning the patient may also be helpful. For example, "Are the members of your family edentulous?" may be a typical question. On the other hand, the defense counsel may point out that the plaintiff has not had the opportunity to avail himself of dental services in the past. The expert, when possible, should consult the victim's regular dentist in order to ascertain whether the patient followed dental treatments on a regular basis. Otherwise, it could be interpreted that the victim may be taking advantage of the situation to rehabilitate his oral condition when otherwise he would not have done so.

Immediate cost of repair and replacement

Opinions may differ regarding the type of replacement necessary under particular circumstances. The plaintiff is entitled to the best possible treatment to restore the mouth to its previous existing condition. Under the heading, "cost of replacement", two factors should be considered: immediate and future replacement. The immediate cost of replacement is self explanatory but the future needs further discussion. As previously described, the plaintiff has the right to the best possible treatment. In some cases a removable appliance may be indicated, while in others a fixed appliance may be the treatment of choice. In either case, the expert should be able to evaluate the life expectancy of the prosthesis. In the case of a removable appliance, a reline may be necessary every two years, with a rebase every five years. The life expectancy of a fixed appliance is more difficult to evaluate, and the old concept that fixed bridges had a life expectancy of about 15 years is not realistic. The supporting tissues may develop periodontal conditions which necessitate the removal of the appliance as well as the abutment teeth. However, today's preventive concepts can minimize or eliminate this problem, providing the patient's medical history is normal. On the other hand, the oral tissues undergo normal regressive changes (ageing), quite apart from possible pathological changes. Recession of the gingiva is considered by some as a normal ageing process but in the case of anterior bridges, this can lead to serious esthetic impairment. Most insurance companies will pay for replacement of fixed and/or removable appliances at an interval of not less than once every five years.

Inflation

In the previous discussion, there was no mention of inflationary factors. The courts will usually view this lump sum payment for future replacement as justified without taking inflation into consideration. The reason they hold this viewpoint is that future rates of inflation or deflation are not scientifically or mathematically predictable or calculable. Moreover, when a settlement is agreed upon or when the court produces a judgment in the plaintiff's favour, the lump sum payment which he receives should be invested to yield interest in accordance with the inflation or deflation rate.

Occupation

McBride[4] points out that the patient's occupation plays a role in the evaluation report. He allocates a scale for occupational grading of permanent disability to total body (1 to 9) for 200 professions. Dental, osseous or cutaneous mutilation for a person in the public eye would be worth far more than for a person whose occupation did not involve daily direct exposure to the public. Thus, as examples, a politician, movie star or television performer would be apt to receive greater compensation than would an "ordinary" citizen, especially if the damage was a permanent nature.

Those individuals who "need" their teeth for professional purposes, such as certain musicians (wind instruments), acrobats (balancing or hanging objects in their mouths), to cite a couple of examples, would also be justified in demanding greater compensation.

Esthetics

When esthetic considerations are coupled with occupational factors, a potent duo exists. The glamour girl with a "toothy" smile in commercial advertisements is a typical example.

When esthetics alone is considered, a handicap may exist if the accident involved the teeth in the anterior section of the mouth. The cost of replacement for this particular problem may be greater than for the same problem in the posterior section of the mouth because a more frequent replacement may be required.

Women, in general, are more prone to take care of their teeth than men in the North American context. They are also better motivated and more apt to seek restorative treatments.

Age

The question of adaptability centres not only on esthetic and functional requirements, but also on the age of the patient. The younger the patient, the easier it is to adapt to a new condition. On the other hand, the greater would be the compensation for future replacement (more years involved). The reverse is true for the elderly patient.

General practitioner or specialist

The question of who is to rehabilitate the plaintiff enters at this point because, normally, a specialist's fees are higher than the general practitioner. If a number of specialists are to rehabilitate the plaintiff's mouth, the total fees may be considerably higher than if the general practitioner were employed.

Pain and suffering

The plaintiff's lawyer will usually claim an amount of money for the following factors: loss of enjoyment of life, inconvenience of treatment, including its frequency and duration, loss of earnings and, finally, for "*quantum doloris*" or pain.

For the latter, the dentist's report or testimony may influence the court's decision in arriving at a reasonable amount for compensation. Pain, although subjective, can be classified as follows:

1. Minor — for example, lacerations; leads to discomfort but does not require medication.
2. Moderate — the patient needs minor analgesics for relief.
3. Severe — for example, fractures where the patient needs strong analgesics for relief.
4. Very severe — when a narcotic is needed for relief, all social activity is curtailed and the patient cannot function.

The patient may have a diminished ability to enjoy life as a result of the accident. If fractures have resulted and surgical intervention cannot restore osseous deformations, loss of taste, loss of feeling, phonetics, esthetics and functional impairment are all to be considered. The inconvenience of present treatment and any future interventions are also important points.

Dynamic problems, such as stretching of the ligaments, clicking of the temporomandibular joint, muscle spasms, comas or burns, are additional factors which may be compensated.

It is important to remember that the expert should evaluate the situation after a certain time lapse since the accident, and also at a later date, if possible. In the interval between evaluations, the prognosis for certain conditions may improve, while for others it may diminish. Paralysis, paresthesia or pulpal necrosis are but three examples of the latter. Some experts consider that a two year delay is indicated in assessing whether paresthesia is of a temporary or permanent nature.

The expert is the only individual who can form an opinion and give that opinion to the court. On the other hand, the judge and/or jury may partially accept, totally accept, or reject the expert's testimony and recommendations. Therefore, the expert's testimony must be well founded and up-to-date. He must be able to stand up to cross-examination and to defend his evaluation and the principles by which he has arrived at his conclusions. The court appreciates the opinion that an expert can supply in arriving at a proper assessment of the damages.

In order that the expert, or any other professionals involved, can support their statements, opinions or testimony, it is absolutely essential that extremely complete and detailed records be kept by all treating practitioners, including full use of radiographs, models, photographs and other aids; in addition to copious, careful chart write up and factual, detailed and complete written reports. Otherwise your patient may not receive his just due.

This article is partially based on a panel discussion entitled "Methods of evaluating the dentition in financial terms: lawsuits, compensation for traumatic injury" presented at the Annual Meeting of the Canadian Society of Forensic Science, October 15, 1976.

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UNE APPROCHE AU SYNDROME DOULEUR-DYSFONCTION

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Le présent article a pour objectif de résumer la pensée du Dr David Laskin sur l'étiologie du syndrome douleur-dysfonction, tel qu'il en a fait l'exposé en septembre dernier à la réunion conjointe de la Société Dentaire de Montréal et au Montreal Dental Club à l'hôtel Bonaventure. Quelques commentaires suivront.

Dans toute maladie, il y a deux aspects essentiels à considérer: d'en établir d'abord un diagnostic précis et d'en comprendre ensuite l'étiologie afin d'élaborer un plan de traitement rationnel. Malheureusement, plusieurs problèmes impliquant le J.T.M. demeurent très discutés.

Dans la décade 1930, Costen a compilé une série de symptômes qu'on a finit par nommer le syndrome de Costen, guérissable par la modification de la hauteur verticale. Il s'écoula une vingtaine d'années avant que soit réalisée l'inexactitude de cette théorie et que surgisse l'expression syndrome du J.T.M. Si l'expression apportait une certaine précision de localisation, il n'en demeurait pas moins que toute douleur dans la région pré-auriculaire, du côté de la face ou dans les régions temporales était interprêtée comme signe d'une seule pathologie (la malocclusion) qui trouvait sa solution dans un seul mode de traitement; la modification des surfaces occlusales des dents indépendamment des causes étiologiques de la douleur.

Schwartz, en 1955, émit l'idée que parmi tous les patients supposément atteints dy syndrome J.T.M. il était possible de distinguer un groupe dont la double caractéristique était la douleur avec limitation du mouvement causées par le spasme de la musculature masticatrice et non pas par origine occlusale proprement dite. Il prétendait aussi que la malocclusion est un facteur contributoire mais non étiologique.

Cliniquement, la douleur lancinante se situe unilatéralement au niveau pré-auriculaire s'irradiant souvent à l'angle de la mandibule aux régions temporale et cervicale. Plus aigue le matin la plupart du temps, elle peut, au contraire, être progressive au cours de la journée avec point culminant pendant les repas.

La deuxième caractéristique au point de vue fréquence est la sensibilité musculaire, plus accentuée dans la région postérieure de la bouche. La palpation de ces régions est indiquée car habituellement, ce symptôme est ignoré du patient.

Vient ensuite le symptôme du craquement dans le J.T.M. avec douleur et sensibilité musculaire.

Enfin, le symptôme de la limitation du mouvement, généralement accompagné d'un trajet d'ouverture avec déviation.

N'entrent pas dans cette catégorie les patients qui présentent cliniquement ou radiographiquement d'évidents changements organiques au niveau du J.T.M., ou encore qui présentent à la palpation dans le méat auriculaire, une sensibilité dans le J.T.M. lui-même.

Ces deux conditions négatives impliquent que l'origine du problème est dans la musculature de la mastication plutôt que dans les structures du J.T.M. et cette destruction est à la base même de la compréhension de l'étiologie au syndrome douleur-dysfonction. Le Dr Laskin admet que le syndrome peut évoluer jusqu'aux changements organiques et qu'il devient alors difficile d'appliquer les critères négatifs pour la classification.

Au cours des années 1933 et 1934, Costen, Groodfriend et Harris, entre autres, avancèrent l'idée que les contacts défectueux entre les dents, la perte de dimension verticale étaient les facteurs du syndrome du J.T.M. par déplacement de la mandibule qui compresserait les tissus conjonctifs rétro-condyliens. Cette théorie que rejette Laskin pour divers motifs ne permet pas d'expliquer les succès cliniques d'une thérapie diamétralement opposée aux formes courantes de traitement.

"Nous croyons, dit-il, que le spasme musculaire est le facteur causal responsable des signes et symptômes du syndrome douleur-dysfonction". Il en arrive ainsi à l'expression syndrome myofacial douleur-dysfonction (MPD) qui lui semble plus descriptive que l'expression de Schwartz "syndrome douleur-dysfonction du J.T.M."

Le spasme peut commencer de trois façons: sur-extension musculaire, sur-contraction musculaire, fatigue musculaire, comme par exemple la sur-extension produite par des restaurations (D.O., P.P.F., P.P.A., P.C.) qui empiètent sur l'espace inter-arche, la sur-contraction produite par la perte des dents postérieures ou la résorption des crêtes alvéolaires chez les porteurs de prothèses complètes.

Ces facteurs mécaniques peuvent, à l'occasion, causer le syndrome MPD mais plus fréquemment c'est la fatigue musculaire produite par les parafonctions (serrement et bruxisme) qui est d'abord en cause par le mécanisme involontaire tension-repos. Puisque ce mécanisme implique des facteurs émotionnels plutôt que mécaniques, la théorie de Laskin est psychophysiologique.

Quelle que soit la cause impliquée, le spasme musculaire tend à produire la douleur, la limitation du mouvement et peut aussi engendrer un changement dans la position de la mandibule et produire la malocclusion qui, si elle dure assez longtemps, déplace les dents qui chercheront à s'accomoder du changement de position de la mandibule. C'est pourquoi certains patients présentent des interférences occlusales après avoir été soulagés de leur spasme musculaire.

En plus de causer des changements occlusaux, le spasme musculaire peut aussi engendrer l'arthrite dégénérative et la contraction (contraction musculaire permanente). Les changements dégénératifs peuvent se produire par la continuation de la fonction alors que le condyle est en position anormale.

Le syndrome MPD a donc comme origine un problème fonctionnel et, à la fin, cause un problème organique. La condition se perpétue par cercle vicieux.

La théorie psychophysiologique du syndrome a été confirmée par des recherches épidémiologiques, radiographiques, psychologiques, biochimiques et physiologiques.

Le syndrome MPD étant plus émotionnel que physique, il s'ensuit que le traitement est d'abord dirigé par cette conception du problème. Lorsque le patient en est au stage de l'implication musculaire, il n'y a aucune indication de thérapie — chirurgie, injections, meulage sélectif, etc. Il est peut-être discutable même d'intervenir à un stage plus avancé puisque les muscles de la mastication restent la source du problème.

Il faut aussi considérer que la correction des conflits intérieurs conduisant à la formation de tension et des parafonctions n'est pas toujours possible même avec la psychothérapie, ce qui signifie que certains patients ne seront jamais complètement guéris et que les mesures ultimes de traitement par restauration ou autrement risquent parfois de compliquer la situation.

Il devient donc nécessaire de faire une approche médicale multi-disciplinaire pour diagnostiquer et traiter les patients affectés de problèmes articulaires.

Réf. Laskin D., J.A.D.A., vol. 79, juillet '69.

Commentaires

S'il est vrai que le syndrome douleur-dysfonction soit d'origine émotionnelle, il s'ensuit que le dentiste n'est pas habilité à en faire le diagnostic.

Les tenants de cette philosophie apportent aussi comme argument que le stress émotionnel de la vie actuelle est de plus en plus grand et parallèlement le syndrome douleur-dysfonction plus fréquent.

Il est de prime abord difficile d'imaginer une thérapie psychiatrique ou de placebo qui rendrait inutile sinon préjugnathologistes. Huffman et Regenos, pour ne nommer que ceux-là, en font même un déterminant de l'occlusion. D'autre part, il est important de remarquer que toute théorie sur le syndrome de l'A.T.M. implique la constation des interférences occlusales et que tous en admettent la nocivité.

Il est de prime abord difficile d'amigner une thérapie psychiatrique ou de placebo qui rendrait inutile sinon préjudiciable l'intervention au niveau des surfaces occlusales. Si l'on juge dans la philosophie de Laskin et Schwartz[1] que la malocclusion joue un rôle dans le syndrome, il semble qu'il serait opportun de l'éliminer, peu importe que ce rôle soit étiologique ou secondaire.

Si le stress émotionnel a provoqué des déplacements, des interférences, il n'est pas assuré que le retour à une situation émotionnelle normale soit une garantie que les dents retrouveront une occlusion dynamique normale.

Ramfjord et Ash[2], rapporte Roth[3], ont trouvé que le niveau de tolérance individuelle va détèrminer si la présence des interférences provoquera ou ne provoquera pas les symptômes douleur-dysfonction. Mais, de toute façon, une thérapie occlusale fonctionnelle éliminera les manifestations dysfonctionnelles dans le système manducateur en dépit d'une persistante tension nerveuse.

Roth[3] en arrive à la même conclusion en disant que les jumelages, l'équilibration de l'occlusion, la dentisterie restaurative et l'orthodontie peuvent éliminer les symptômes.

L'observation clinique révèle aussi que ces moyens peuvent être des facteurs iatrogéniques du syndrome.

Le grand objectif du thérapeute étant la promotion de la santé, il entre dans la fonction du dentiste-opérateur de contribuer au bien-être sans tendre à devenir un dentiste-psychiâtre.

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2 Ramfjord et Ash: "Occlusion". Saunders.
3 Roth: "Temporomandibular Pain-Dysfunction and Occlusal Relationships". Conférence donnée au Northern California Component of the Angle Society. Janvier 1972.

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Details from Secretary, SAAD, 53 Wimpole Street, London, W1M 7DF, England.

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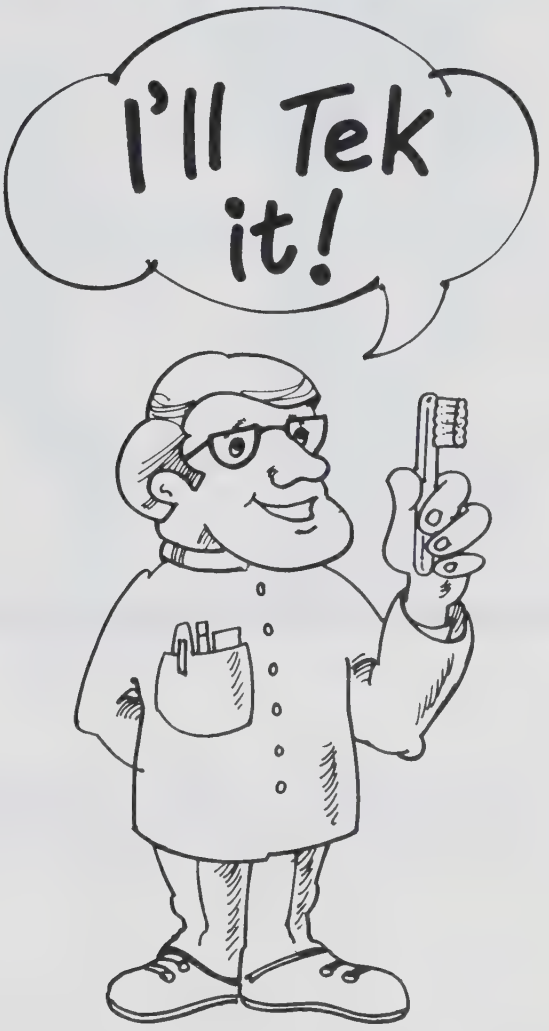

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TORONTO ACADEMY OF DENTISTRY
ANNUAL WINTER CLINIC

ROYAL YORK HOTEL
THURSDAY, NOV. 23, 1978

FEATURING:

Dr. J. M. Symington, Chairman, Dept. of Oral Surgery, Faculty of Dentistry, University of Toronto: "Surgical Management of the Soft Tissues of the Mouth"

Ms. Deloris Woloschek, Senior Consultant, PBP Management Consultants, Madison, Wisconsin: "How to Satisfy Your Patients, Your Staff, Yourself"

Dr. George A. Zarb, Chairman, Dept. of Prosthodontics, Faculty of Dentistry, University of Toronto: "Mandibular Dysfunction: The Dentist's Responsibility"

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For information contact Mrs. P. Williams, Academy of Dentistry, 234 St. George Street, Toronto M5R 2P2 (Telephone: 967-5649)

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The Bermuda Open Amateur Golf Championship, at Mid Ocean Club from 15th to 19th January.

For further details, please contact:

The Secretary,
The Bermuda Dental Association,
P.O. Box 785,
Hamilton, Bermuda.
Tel: 809-29-27676

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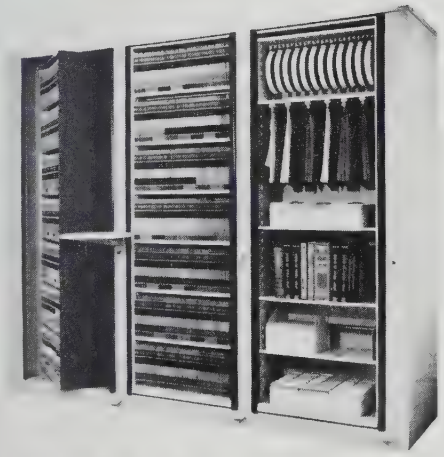

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October 1978/Volume 44/No. 9

Canadian Dental Association/Association Dentaire Canadienne

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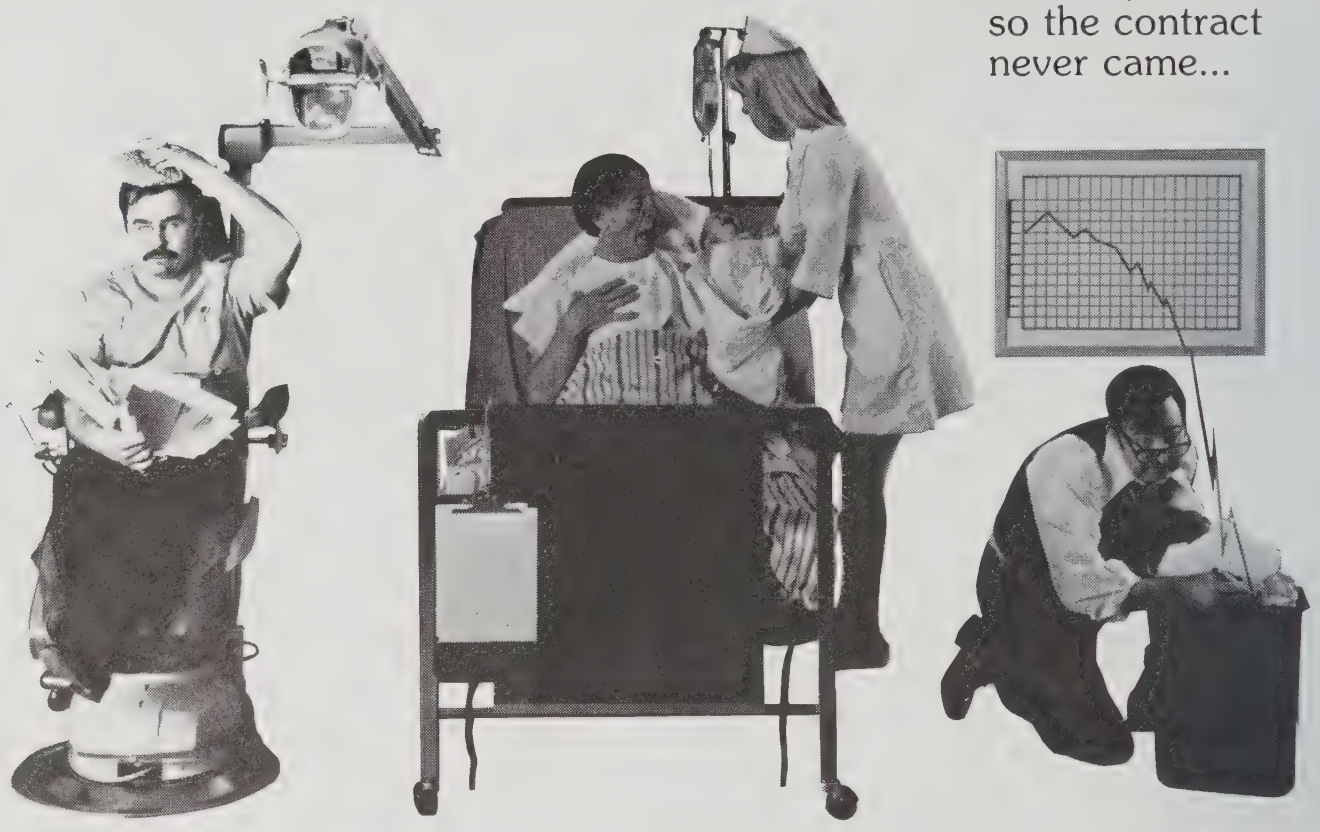

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†Beiswanger, B.B., *et al.*: J. Dent. Child. 45:137, 1978.

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1979, Quebec City, September 9-12.

Canadian Meetings

Calgary and District Dental Society Banff Seminar, March 2-4, 1979. Three one-half day seminars at the height of the spring skiing season. Contact: Dr. Richard Odland, President, Calgary and District Dental Society, 615, 906-8 Avenue S.W., Calgary, Alberta T2P 1H9.

Third Canadian Congress of Dentistry for Children, Vancouver, April 6-8, 1979. Contact: Dr. G. M. Jinks, Suite 301, 1701 West Broadway, Vancouver, British Columbia V6J 1Y3.

Ontario Dental Association, 112th Spring Meeting, Sheraton Centre, Toronto, May 13-16, 1979. Contact: Mrs. W. C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Les Journées Dentaires du Québec, Queen Elizabeth Hotel, Montreal, May 27-31, 1979. Contact: Dr. Morton R. Lang, 5253 Decarie Blvd., Montreal, Quebec H3W 3C3. Telephone: (514) 481-0397.

Western Canada Dental Society Convention, Hotel Saskatchewan, Regina, June 7-9, 1979. Contact: Dr. T. E. Donavon, 205 McCallum Hill Building, Regina, Saskatchewan S4P 2G6.

7th International Symposium on Dental Hygiene, Vancouver, British Columbia, July 25-28, 1979. Theme: ''Life long learning''. Dental hygienists interested in participating in the program are asked to submit a summary of a 15 minute presentation relating to the theme for consideration by the Organizing Committee. Deadline for receipt of summaries is December 1, 1978. Submissions should be approximately 200 words in length and should be sent to: Joan S. Voris, General Program Chairman, 7th International Symposium on Dental Hygiene, 1125 West 8 Avenue, Vancouver, British Columbia V6H 3N4.

International Meetings

American Dental Association, 119th Annual Session, Anaheim, California, October 22-26, 1978. Theme: Dentistry's Mission: Pursuit of Excellence''. Contact: American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

Association of American Women Dentists, Annual Meeting, the Quality Inn, Anaheim, California, October 22-23, 1978, in conjunction with the American Dental Association Convention. Contact: Dr. Jean Savage, 240 26th Street, Santa Monica, California 90402. Telephone: (213) 451-5404.

International Symposium on Recent Advances in Clinical Periodontology, Tel-Aviv University Dental School, Israel, October 25-26, 1978. Contact: Dr. Hart Levine, Tour Chairman, Fifth Annual Alpha Omega Mission to Israel (sponsored by the Toronto Alumni Chapter), 2006 Bathurst Street, Toronto, Ontario M5P 3L1. Telephone: (416) 781-2751.

Korean Dental Association, 30th Annual Scientific Congress, Seoul, Korea, November 9-11, 1978. Contact: Jhee, Heun-Taik, DDS, President, Korean Dental Association, P.O. Box 41, Yungdeungpo, Seoul, Korea.

International Congress on Hospital Dentistry, New York City, November 29-December 3, 1978. Contact: R. P. Hylton Jr., School of Dentistry, University of Minnesota Health Sciences Unit A, Suite 7174, Minneapolis 55455.

Bermuda Dental Association, Mid-Winter Meeting, Southampton Princess Hotel, Bermuda, January 20-22, 1979. Contact: The Secretary, Bermuda Dental Association, P.O. Box 785, Hamilton, Bermuda. Telephone: 809.29.27676.

Virgin Islands Dental Association Meeting, St. Thomas Sheraton Hotel and Marina, February 29-March 3, 1979. Contact: Virgin Islands Dental Association, c/o Travel Services, Inc., P.O. Box 1691, Charlotte Amalie, V. L. 00801.

International Conference on Oral Implantology, Jerusalem, Israel, April 1-5, 1979. Contact: Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9.

Asian Pacific Dental Federation, 9th Dental Congress, Merlin Hotel, Kuala Lumpur, Malaysia, April 23-27, 1979. Contact: Dr. Lim Chee Shin, P.O. Box 234, Petaling Jaya Selangor, Malaysia.

Society for the Advancement of Anaesthesia in Dentistry, Second International Congress on Modern Pain Control (Sedation, Anaesthesia and Analgesia in Dentistry), Royal Lancaster Hotel, London, England, July 13-16, 1979. Contact: Secretary, SAAD '79, 53 Wimpole Street, London W1M 7DF, England.

7th International Symposium on Dental Hygiene, Vancouver, British Columbia, July 25-28, 1979. For details see listing under ''Canadian Meetings''.

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CFDE — The Second Million

A million dollars is a lot of money! Even in these days of instant wealth for lottery winners, it's still a lot of money.

Yet, a million dollars is the amount of money the Canadian Fund for Dental Education has provided to date for the benefit of dental students, dental schools, practising dentists, dental research, dental auxiliaries and, perhaps most important of all, the public, to ensure that Canadians continue to receive the best dental health care available anywhere.

It took 15 years to raise the first million: how long for the second? Certainly less than half, probably only a third, as long. In 1977, Fund assistance hit a record high of over $150,000.

Where does all the money come from? Many places: Companies, foundations, dental auxiliaries, interested individuals, dental organizations and personal gifts from dentists. Obviously, the most important contributions are those from dentists, so let's talk about them.

Fortunately, each year a rapidly increasing number of doctors recognize the leadership role they must play if CFDE (their Fund) is to realize its full potential for advancing dentistry. They do so by digging into their own pockets for a contribution — sometimes small, sometimes large — but *always* a tangible endorsement of the Fund's programs. And that's what counts for CFDE.

How effective is professional leadership? Well, up to the end of 1977 it was a big factor in attracting contributions of over $500,000 from business and industry and over $100,000 from foundations.

Of course, there are many reasons why individual doctors from all parts of Canada personally support the Fund's programs. The following statements represent just a few:

"No question about it, dentistry has been good to me and I've an obligation to put something back in."

"If dentistry is to keep pace, we must have adequate dental research; CFDE funds research conferences every two years."

And how about the young doctor who called at the CFDE office late last year to hand over a personal cheque for $1,000. When asked what prompted this generous gift, he said: "When I was attending dental school, money was really tight. So tight that unless I earned enough during the summer, I couldn't complete my education. Friends in the dental school helped me get a summer job and I graduated. Now that I've been practising for several years, it's my turn to help someone else."

A note enclosed with a gift from the Dean of a dental school: "There is no doubt that the CFDE has played, and is playing, a most significant role in the progress of Canadian dental education."

Many dentists honour the memory of a deceased classmate, friend or relative with a gift to CFDE's Living Memorial Fund.

Since the beginning, a large part of CFDE's resources has been used to help dentists become teachers. A young dentist recently completed his training and has now accepted a full-time position in a dental school. Here is an excerpt from his letter to us: "As a token of my appreciation for the financial assistance I received from CFDE during my graduate training, I wish, at present, to pledge a contribution of $100.00 per year to the Fund."

These are just some of the reasons for supporting CFDE. Giving to any worthwhile cause is such a personal thing that, undoubtedly, there are many other reasons why dentists send contributions to CFDE.

We hope you think of one in "OCTOBER — CFDE MONTH".

Murray McDonald
Executive Director
Canadian Fund for Dental Education

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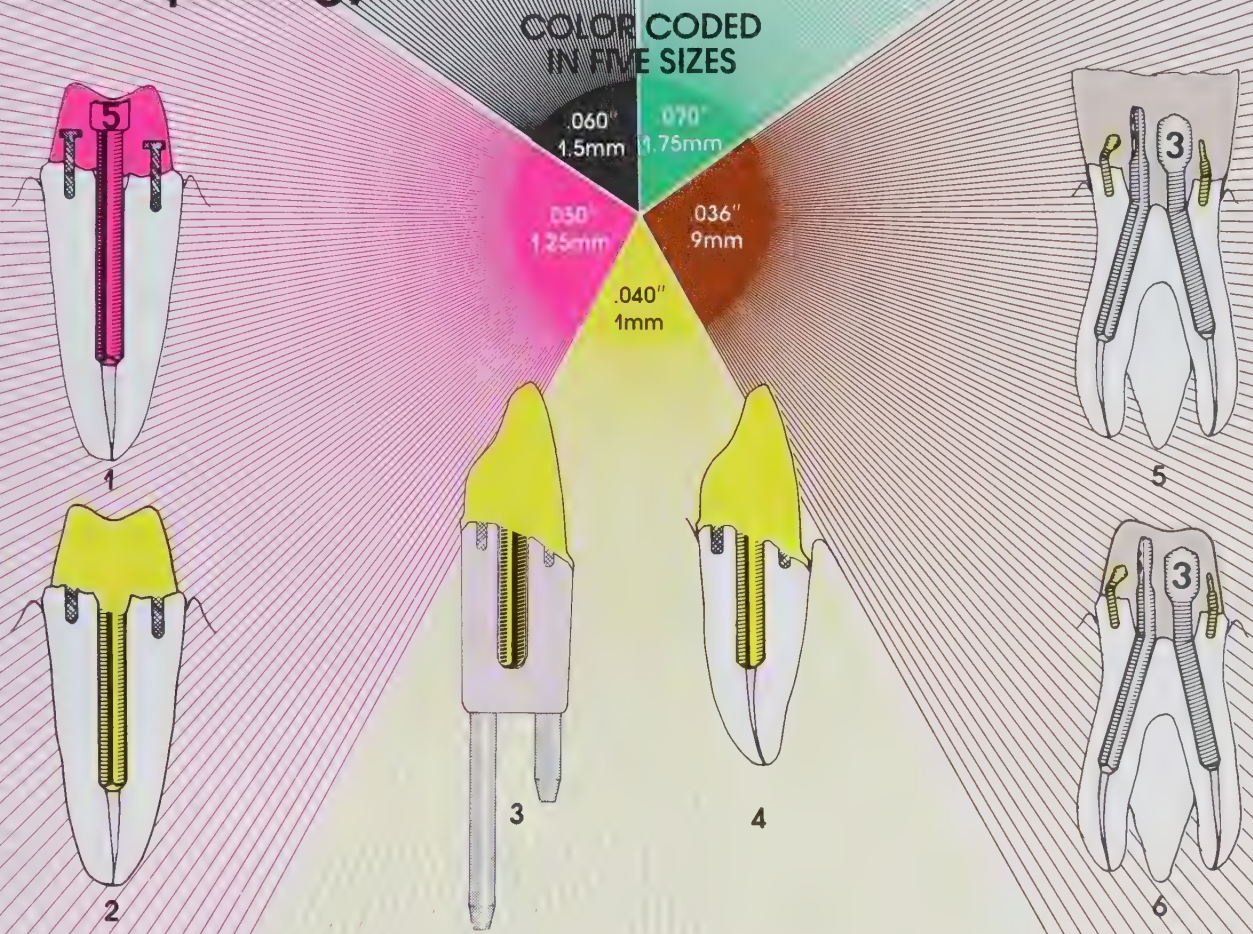

DIRECT TECHNIQUE:

The fabrication of posts and cores by the direct method is an efficient and economical procedure and is most often utilized on dentition within easy access.

1—The core is built up with self curing resin and shaped to the required configuration.

2—The core, pins and posts are cast by the conventional method providing a retentive, sound foundation for the superstructure.

INDIRECT TECHNIQUE:

The indirect method is most often utilized where the subgingival margins are inaccessible. Best results are obtained by taking an impression and fabricating the core and post on a model with removable dies and sections.

3—The cast core, pins and post are fabricated on a removable die allowing for proper seating and marginal fit adaptation.

4—The cast core, pins and post are cemented providing a retentive sound foundation for the superstructure.

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STUDY CLUB MEMBERS CONTRIBUTE $9,000 TO ADVANCE DENTAL EDUCATION AND RESEARCH

The members of the Crown and Bridge Study Club of the Toronto Academy of Dentistry again tangibly demonstrated their interest in advancing dental education and research at a recent presentation ceremony. Dr. Allan McNab, President, and Dr. Murray Buchman, Past-President, presented cheques for $7,000.00 and $2,000.00 respectively to University of Toronto Dean Richard Ten Cate and CFDE Vice-Chairman Stanley Tebbutt.

"The gift to the University of Toronto Faculty of Dentistry will be used to purchase badly needed microscopes which otherwise would not have been obtainable due to budget restrictions," stated Dr. Ten Cate.

"This latest gift of $2,000.00 increases the Study Club's CFDE Endowment, originally established in 1976, to $10,000.00. As directed by the Study Club, the substantial annual income generated by the Endowment is to be used at the discretion of the Fund Trustees in their efforts to promote a constantly improving level of dental health care. We deeply appreciate this foresighted and generous assistance," said Mr. Tebbutt.

Dr. Allan McNab (centre) presents cheques to Dean Richard Ten Cate and Mr. Stanley Tebbutt while Mr. Murray McDonald and Dr. Murray Buchman register their approval.

Royal College Examinations

Part I (Basic Sciences) Examinations, leading to Fellowship in the Royal College of Dentists of Canada will be held on **Monday, June 18, 1979,** in regional centres across Canada.

Applications for these examinations, with the $100.00 examination fee, must be received at the RCDC office by **January 15, 1979.**

Application forms (for the Part I examinations) and further information may be obtained from the Secretary - Registrar- Treasurer, Dr. J.E. Speck, Ste. 614, 170 St. George Street, Toronto, Ontario, M5R 2M8.

Part II (oral) examinations will be held as usual in Toronto, late in November or early in December, 1979.

CFDS Appointment and Promotion

Colonel A.G. Taylor was promoted to that rank in July 1978 and appointed Director of Dental Plans and Requirements. A 1952 graduate of the University of Alberta, Colonel Taylor's past appointments include Instructor in Restorative Dentistry at the Canadian Forces Dental Services School in Borden, Ontario; Chief Instructor of the Czechoslovakian Dentists Retraining Programme at the University of Western Ontario in 1970; and most recently Commanding Officer of 11 Dental Unit in British Columbia. Colonel Taylor was also the dental member for the Medical Expedition to Easter Island, a research project carried out during the 1964-65 period.

Colonel A. G. Taylor

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ntists agree that dental care should not end when the tient leaves the office. Recommending Colgate*with MFP* oride helps extend your professional care to the source of e cavity problem; the patient at home.

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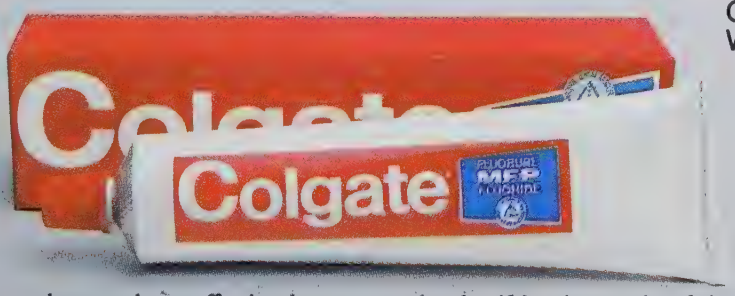

"Colgate with MFP has been shown to be an effective decay-preventive dentifrice that can be of significant value when used in a conscientiously applied program of oral hygiene and regular professional care."
Canadian Dental Association

*T.M.

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NEW COLONEL COMMANDANT FOR THE CFDS

Brigadier-General (Ret'd) Bertram Patrick Kearney, MBE, CD, QHDS, DDS, FICD, has recently been appointed Colonel Commandant of the Canadian Forces Dental Services, succeeding Brigadier-General (Ret'd) Kenneth Martin Baird, OBE, CD, DDS, FICD. By this appointment, the Minister of National Defence rekindles the military flame in an officer whose strong leadership, personal example and sagacious policies have contributed significantly to the betterment of the Canadian Forces Dental Services.

A native of Galt, Ontario, General Kearney obtained his degree as Doctor of Dental Surgery from the University of Toronto in 1936. Upon graduation he completed a one-year internship at the Forsyth Dental Infirmary and two years later a Research Fellowship took him to the School of Medicine and Dentistry in Rochester, N.Y.

General Kearney, who retired as Director General of Dental Services in 1970, began his association with the military in 1940 when he joined the militia. A month later he transferred to the Canadian Active Service Force and saw service in Canada and Europe during the war. Immediately following the war he enrolled in the Regular Force to which he devoted the next twenty-five years of his life.

Brigadier-General B. P. Kearney

General Kearney held various senior appointments in the RCDC prior to becoming DGDS in December 1966. These positions included: Commanding Officer of 25 Canadian Field Dental Unit in Korea, Commandant of the RCDC School at Camp Borden, Commanding Officer of 11 Dental Company and Command Dental Officer, Western Command, Edmonton. Career honours and awards include: Member of the Most Excellent Order of the British Empire, Fellow of the International College of Dentists and Queen's Honorary Dental Surgeon.

After leaving the Canadian Forces, General Kearney accepted the position of Chairman of the Department of Community Dentistry, Dalhousie University, Halifax. He relinquished this post in 1975 to enjoy a well-earned second retirement near Charlottetown, P.E.I.

DALHOUSIE CONFERS HONORARY DEGREE ON H. M. THORNTON

Mr. Henry M. Thornton, Chairman of the Board and Chief Executive Officer of Dentsply International Inc., York, Pennsylvania, delivered the Convocation address and received the degree of Doctor of Laws, honoris causa at Dalhousie University's Dental Convocation held May 10 in Halifax, Nova Scotia.

In conferring the degree, University President Dr. Henry D. Hicks outlined Mr. Thornton's background and contributions to the dental profession:

"Henry Moser Thornton, born in Mechanicsburg, Pennsylvania, joined Dentsply International in 1938 and by 1942 had become Vice-President. He was elected President in 1955 and Chairman of the Board and Chief Executive Officer in 1972.

"Henry Thornton early recognized the growing needs of dental education and worked to meet those needs by the establishment of the American Fund for Dental Education, now known as the American Fund for Dental Health. His company supplied the funds for the survey which led to its founding and the seed money to start its operation. This support has continued, and with the founding of the Canadian Fund for Dental Education, Dentsply Canada became a regular contributor. Dr. Thornton's influence has reached beyond his own company to the entire dental industry.

"During his term as President of the American Dental Trade Association, he led that organization into a major fund-raising campaign for dental education. More direct support has come to dental education for the free provision of teaching aids, and the sponsorship of the Student Table Clinic Program at the Annual Conventions of the American, Canadian and British Dental Associations. As a recent local example, Dentsply provided the funds and the services of their Director of Professional Research for the Lorne E. MacLachlan Prosthodontic Teaching Conference held at Dalhousie University.

"Henry Thornton has been widely honored for the leadership he has given to support dental education and to foster harmonious relations between the dental industry and the profession. Loyola University, Chicago, has con-

Continued on page 396

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Dalhousie honorary degree . . .

ferred on him an Honorary Doctor of Humane Letters, and Northwestern University has conferred on him an Honorary Doctor of Laws. He has received special awards and citations from several organizations, including the American College of Dentists and the American Student Dental Association. He holds honorary memberships in many dental organizations, including the American Dental Association, the International College of Dentists, the American Association of Dental Schools, and the Alumni Association of Student Clinicians of the American Dental Association, all organizations in which the Faculty of Dentistry and its members at Dalhousie participate."

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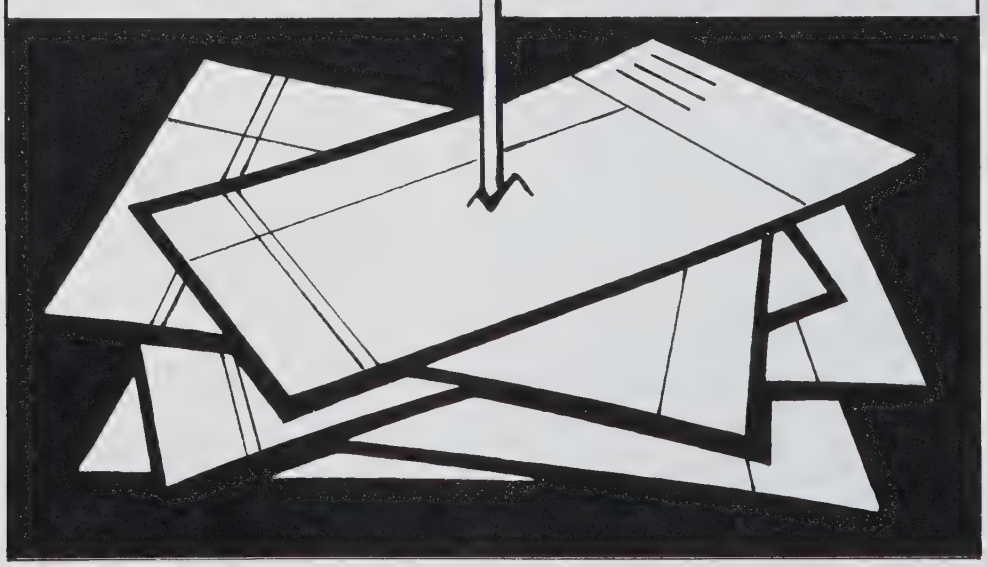

Deaths

Blaquiere, Robert Henry, 57. Edmonton, Alberta. University of Alberta, 1944. 5-8-78. Survived by Mary (wife), Donald (son) and Betty-Anne (daughter).

Flora, Fred A., 72. Toronto, Ontario. Royal College of Dental Surgeons, 1925. 15-8-78. Survived by Helen (wife).

Montreal Dental Club announces new executive

The Montreal Dental Club has announced its new executive for the 1978-79 term of office. Members are: Dr. Rolland Nadeau, president; Dr. Donald Townsend, first vice president; Dr. Bob David, second vice president; Dr. Leonard Kent, immediate past president; Dr. Bill Gussow, secretary; Dr. Frank Burns, treasurer; Dr. Gordon Johnston, historian; Dr. John Taylor, communications; Dr. Mike Little, continuing education; and, Drs. Emile Rathlou, Don Leith, Dick Nicholson and Andy Tekela, directors.

Executive of Essex County Dental Society

Executive members of the Essex County Dental Society for the 1978-79 term of office are: Dr. B. E. Walls, president; Dr. M. P. Piercell, vice president; Dr. M. H. Malowitz, treasurer; and Dr. E. A. Zusko, secretary.

CDA Board of Governors announces interim meeting

The Canadian Dental Association's Board of Governors will hold its interim meeting March 12 and 13, 1979, at the Chateau Laurier Hotel in Ottawa.

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IADR PRESIDENT CALLS FOR WORLD-WIDE PUBLIC INFORMATION PROGRAM TO REPORT ON DENTAL RESEARCH DEVELOPMENTS

The new president of the International Association for Dental Research (IADR) has called for a world-wide public information program to report on new dental research developments aimed at improving prevention of dental disease.

Dr. Finn Brudevold of Boston has stated: ''Our Association and its divisions are losing the great opportunity of informing and arousing the interest of intelligent people of all countries who want to be informed.'' Noting that the idea of IADR's expanding communications with the public has been proposed previously, he declared: ''I would like to see this idea implemented and expanded to include distribution to the media of newsworthy material related to the status of dental health and prevention in different countries and to breakthroughs in prevention wherever they may occur.''

Dr. Brudevold's comments were included in his presidential address delivered to the 56th general session of IADR in Washington, D.C.

He suggested that IADR should cooperate with such groups as the European Organization for Caries Research, the Fédération Dentaire Internationale, and the World Health Organization, and with national dental associations to help make the public more aware of significant activities and developments in the research and prevention areas.

As Dr. Brudevold pointed out: ''A high prevalence of dental caries continues to plague most industrial countries; moreover, caries is increasing and creating an additional health problem in developing countries.'' He urged the promotion of international educational programs in order to inform the public that effective preventive measures in dental health are available.

Dr. Brudevold noted that caries prevention programs have made significant progress in three Scandinavian countries in spite of the fact that there are no fluoridated water supplies.

''The programs include fluoride supplements from infancy, supervised fluoride mouth rinses given weekly or bi-weekly during the school year, use of fluoride dentifrices, and oral health education. Annual evaluation of performance stimulates motivation at the local level and provides data for policy making at regional and national levels,'' he explained.

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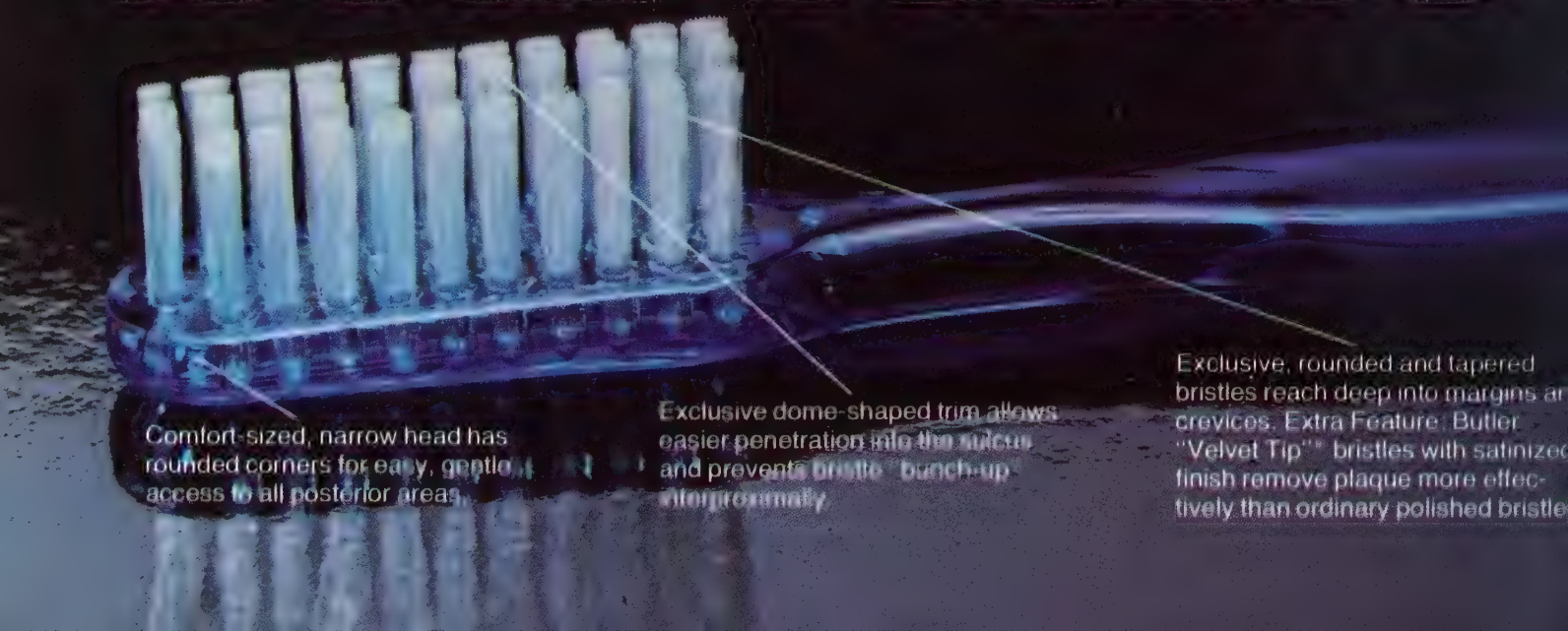


Dr. Brudevold noted that because dentistry is in a state of transition, the traditional approach of focusing mainly on the treatment of dental disease is outmoded. "Adoption of simple preventive procedures in a dental care delivery system would decrease the need for reparative service and help provide adequate care to more people at less cost."

In closing, he repeated his call for IADR to assume international leadership in fostering communication with the public and in giving more thought to the point at which science and politics meet.

"We should use every means available of access to the media because it is an inescapable fact that with our specialized knowledge in the field of prevention we have a larger share of responsibility in influencing public opinion than our numbers would indicate," he stated.

Dr. Brudevold is chairman of the chemistry department at Forsyth Dental Center in Boston.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association's Retirement Savings Plan stood as follows on August 31, 1978:

Common Stock Fund	$33.789
Fixed Income Fund	$21.568
Guaranteed Fund	$14.918
Balanced Fund	$10.861

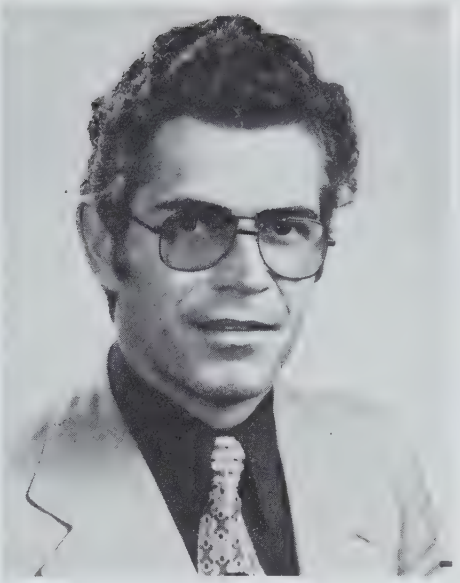
Total assets (market value) of the plan were $30,757,764.91.

The previous month's figures, as of July 31, 1978, stood as follows:

Common Stock Fund	$33.389
Fixed Income Fund	$21.423
Guaranteed Fund	$14.845
Balanced Fund	$10.665

Total assets (market value) of the plan were $30,649,967.85.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.



Dr. Pierre Surprenant

Quebec Oral Surgeons

Dr. Pierre Surprenant of Sherbrooke is the new president of the Association of Oral Surgeons of Quebec. His election to the office was announced following the Association's annual meeting held in May.

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First to recognize the importance of brush design for effective oral hygiene, Dr. John O. Butler pioneered the concepts that led to the development of today's modern G·U·M toothbrush. The dome-shaped trim with its rounded, tapered bristles reaches effectively into the sulcus. Satinized ends of the nylon filament are velvet soft, and exceptionally efficient plaque removers.

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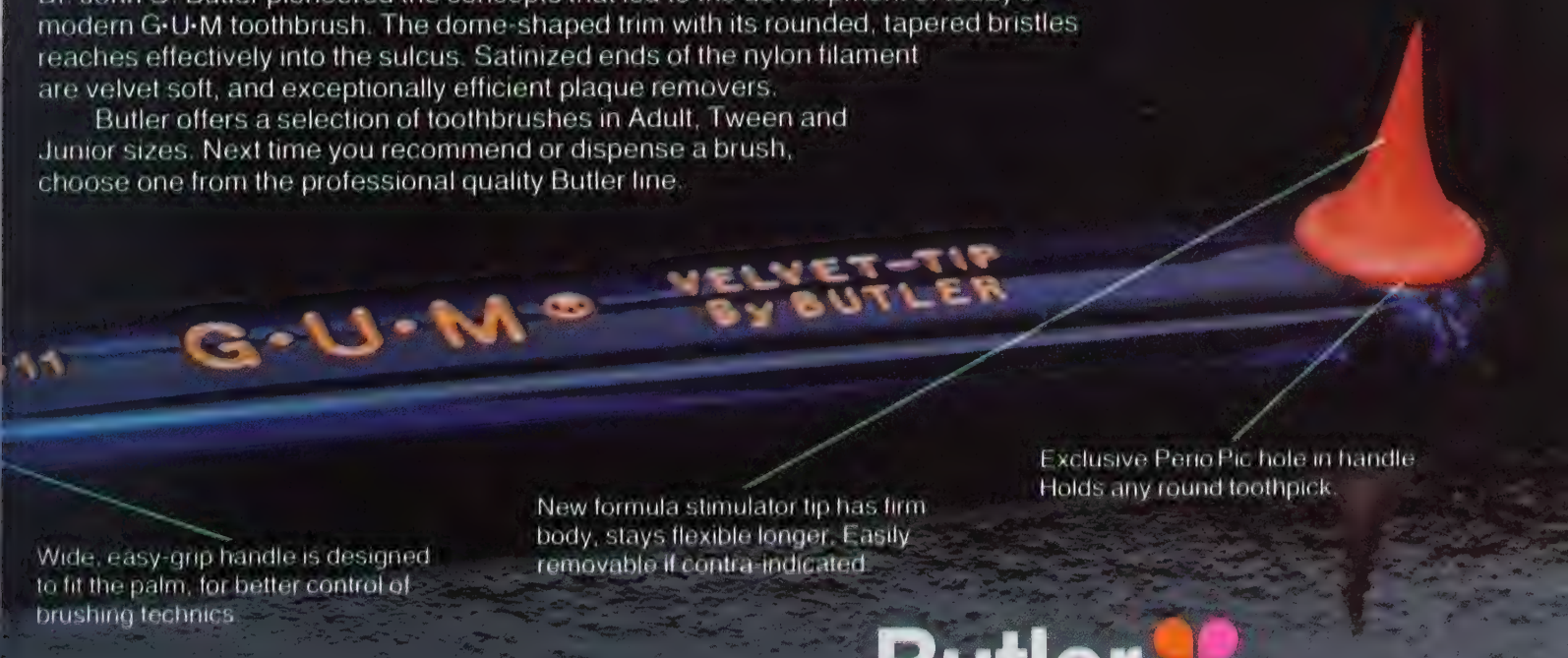

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Instructions to Contributors

The Journal of the Canadian Dental Association is currently soliciting research and clinical articles for publication. Interested contributors are asked to use the following outline of requirements when preparing manuscripts.

Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies — original and a carbon — typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, 8½ × 11 inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

Article Titles Make article titles descriptive but as concise as possible. Long titles discourage reading, present typographical and layout problems and create difficulties in library indexing.

References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. J Canad Dent Ass 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

Illustrations: Line and halftone illustrations should be of high quality for satisfactory reproduction.

Photographs — Handle photographs carefully. Do not bend, fold or use paper-clips. Photographs should be unmounted, untrimmed, good, sharp, black and white glossy prints, preferably not larger than 10 × 8 inches. Color work can only be published at the author's expense. Magnification of photomicrographs must always be given. Photographs must not be written on or typed on. On the back of each photograph, very lightly and in pencil, write the author's name, the figure number and indicate the top edge. If a figure contains two or more photographs, do not mount the parts; on the back of each photograph write very lightly in pencil the figure number and part letter (Figure 1a, etc.) and indicate the top edge. Patients must not be recognizable unless the written consent of the subject to publication has been obtained.

Drawings — Figures, graphs, charts and diagrams should be drawn and lettered in india ink. Lettering must be large enough to be read after the drawings are reduced to column width (small, simple drawings) or page width (larger, more complex drawings).

Legends — Figure legends should be typed as a group on a separate sheet. They should be separate from the text of the article and from the illustrations.

Tables: Each table should be typed on a separate sheet. Tables should be numbered consecutively and tailored to fit within column width or page width. Table title and table footnotes should be on the same page with the table. Do not show vertical rules in tables.

Permission and Waivers: These should accompany the manuscript when it is submitted for publication. Permission of author and publisher must be obtained for the direct use of material (text, photos, drawings) under copyright that is not your own. Up to one hundred words of prose material usually can be quoted without getting permission, provided the material quoted is not the essence of the complete work. Waivers must also be obtained for the publication of photographs showing persons, unless faces are masked to prevent identification. Waiver forms are available from the editor.

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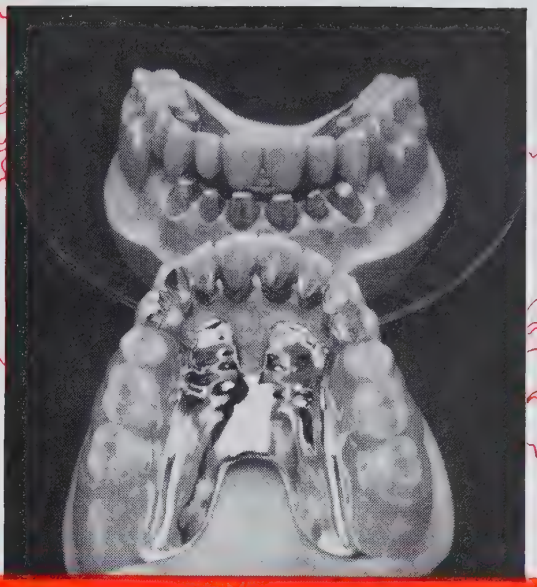

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CAMPAGNE D'ADHESION DES ETUDIANTS POUR 1978

Au cours du mois de septembre, l'Association dentaire canadienne lancera sa campagne d'adhésion des étudiants dans les écoles dentaires de tout le Canada. Le nombre d'étudiants qui se joignent à l'ADC augmente régulièrement d'année en année et en 1977, ce chiffre battait tous les records. L'on prévoit que 1978 sera également une année record car un nombre toujours croissant d'étudiants dentaires reconnaissent le fait que l'adhésion à leur association nationale constitue plus que jamais un investissement judicieux dans l'avenir de leur carrière.

La campagne comprend une réception ''Bienvenue à la profession'' qui aura lieu en septembre et au début d'octobre à toutes les facultés dentaires du Canada, sous le parrainage du département des Affaires des étudiants de l'ADC. Les réceptions en Ontario seront conjointement parrainées par l'ADC, l'Association dentaire de l'Ontario et le Collège royal des chirurgiens dentistes. Lors de chacune de ces réceptions, la directrice des Affaires des étudiants, Linda Teteruck, sera accompagnée de l'un des gouverneurs de l'ADC et d'un membre de l'association dentaire provinciale qui parlera de tout l'éventail d'activités qu'offre l'ADC et du rapport entre ces activités et les besoins des étudiants dentaires. Les discussions porteront également sur les avantages que présente pour les étudiants, l'adhésion à l'ADC.

La présentation d'un cadeau à l'étudiant représentant chaque faculté, en reconnaissance des services qu'il (ou elle) a rendu au cours de l'année 1977-78 à l'ADC, constituera l'un des moments mémorables des réceptions.

L'adhésion à l'ADC pour les étudiants est toute simple: pour la modeste cotisation annuelle de $5.00, tout étudiant inscrit à une faculté dentaire du Canada, ou tout dentiste diplômé qui a passé directement d'un programme universitaire à une entière année d'études de spécialisation au sein d'une école ou d'un hôpital agréés, est admissible à devenir membre de l'ADC et à profiter des avantages concomitants. En Ontario, la situation diffère un peu, car l'adhésion conjointe à l'ADC/ADO est offerte aux étudiants pour une cotisation annuelle de $10.00. Ceci permet à tout étudiant non diplômé d'une faculté dentaire de l'Ontario de profiter des avantages qu'offre l'adhésion à l'ADC et à l'ADO. Ces avantages sont nombreux et diversifiés:

- un abonnement annuel au Journal de l'Association dentaire canadienne
- la participation au Congrès national annuel de l'ADC
- l'avantage de participer au programme de tables cliniques des étudiants
- l'adhésion automatique à l'Association internationale des étudiants dentaires, ses programmes d'échange d'étudiants et son congrès international annuel.
- l'accès à toutes les publications de l'ADC et à la considérable bibliothèque dentaire de l'Association
- la représentation directe des étudiants à l'ADC grâce à la sélection d'un représentant des étudiants à l'ADC
- la participation directe à tous les domaines d'activités des étudiants et la présence du représentant des étudiants de chaque faculté au congrès annuel des étudiants dentaires du Canada
- l'information pertinente relativement aux associations dentaires à l'échelle nationale et provinciale
- l'avantage de pouvoir participer aux régimes dentaires d'assurance et d'investissement à l'échelle nationale et provinciale.

L'apport des étudiants à l'Association dentaire canadienne a été amplifié et renforcé par l'intermédiaire du Conseil sur les affaires des étudiants, nouvellement constitué, qui agit sous la direction directe du Conseil exécutif et du Bureau des gouverneurs de l'ADC, ainsi d'ailleurs que tous les autres Conseils pléniers de l'Association. Au cours de sa première année d'existence, le Conseil sur les affaires des étudiants a entrepris une multitude de projets relatifs aux intérêts des étudiants dentaires canadiens. Le président du Conseil, Richard Gilsig, étudiant dentaire de 4ème année à l'Université McGill, fera le compte-rendu des principales responsabilités et activités du Conseil au cours de l'assemblée du Bureau des gouverneurs qui aura lieu en septembre 1978.

CONTRIBUTION DES DENTISTES: $9,000

Lors d'une récente cérémonie, les membres du Crown and Bridge Study Club (Groupe d'étude des couronnes et ponts) de l'Académie dentaire de Toronto ont, une fois de plus, prouvé de manière tangible l'intérêt qu'ils portent à l'avancement de l'enseignement et de la recherche dentaires. Le Dr Allan McNab, président et le Dr Murray Buchman, président-sortant, ont présenté au Dr Richard Ten Cate, doyen de l'Université de Toronto et à M. Stanley Tebbutt, vice-président du FCED, deux chèques s'élevant respectivement à $7.000 et à $2.000.

''Ce don à la faculté dentaire de l'Université de Toronto servira à acheter des microscopes dont nous avons vraiment besoin mais que nous ne pouvions nous permettre à cause des restrictions budgétaires,'' a signalé le Dr Ten Cate.

''Le dernier don de $2.000 augmente le fonds de dotation du Study Club au FCED, établi en 1976, à $10.000. A la demande du Study Club, l'important revenu annuel provenant de ce fonds de dotation est utilisé à la discrétion des fiduciaires en vue de promouvoir des normes de plus en plus élevées pour les soins dentaires. Nous apprécions vivement cet appui généreux et prévoyant,'' a déclaré M. Tebbutt.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 août, 1978:

Fonds d'actions ordinaires	$33.789
Fonds à revenu fixe	$21.568
Fonds garanti	$14.918
Fonds de placement équilibré	$10.861

L'avoir total (valeur marchande) du régime s'élevait a $30,757,764.91.

Au 31 juillet, 1978, les chiffres du mois précédent étaient les suivants:

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Fonds à revenu fixe	$21.423
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Pour obtenir tout renseignement supplémentaire, prière de s'adresser aux: Régimes des rentes et d'assurances subventionnés par l'ADC, 234 rue St. George, Toronto, Ontario M5R 2P2.

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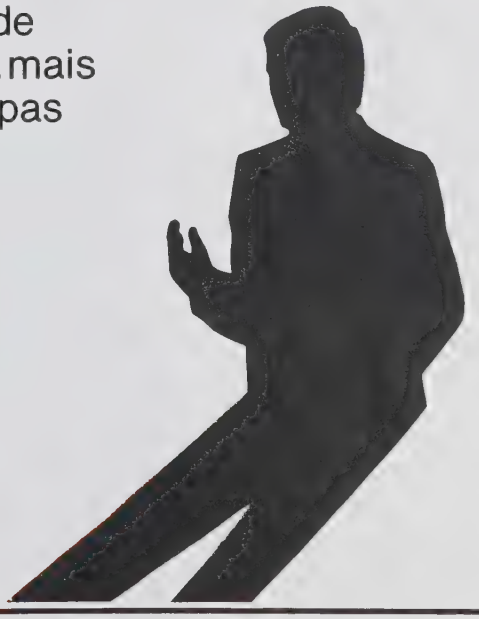

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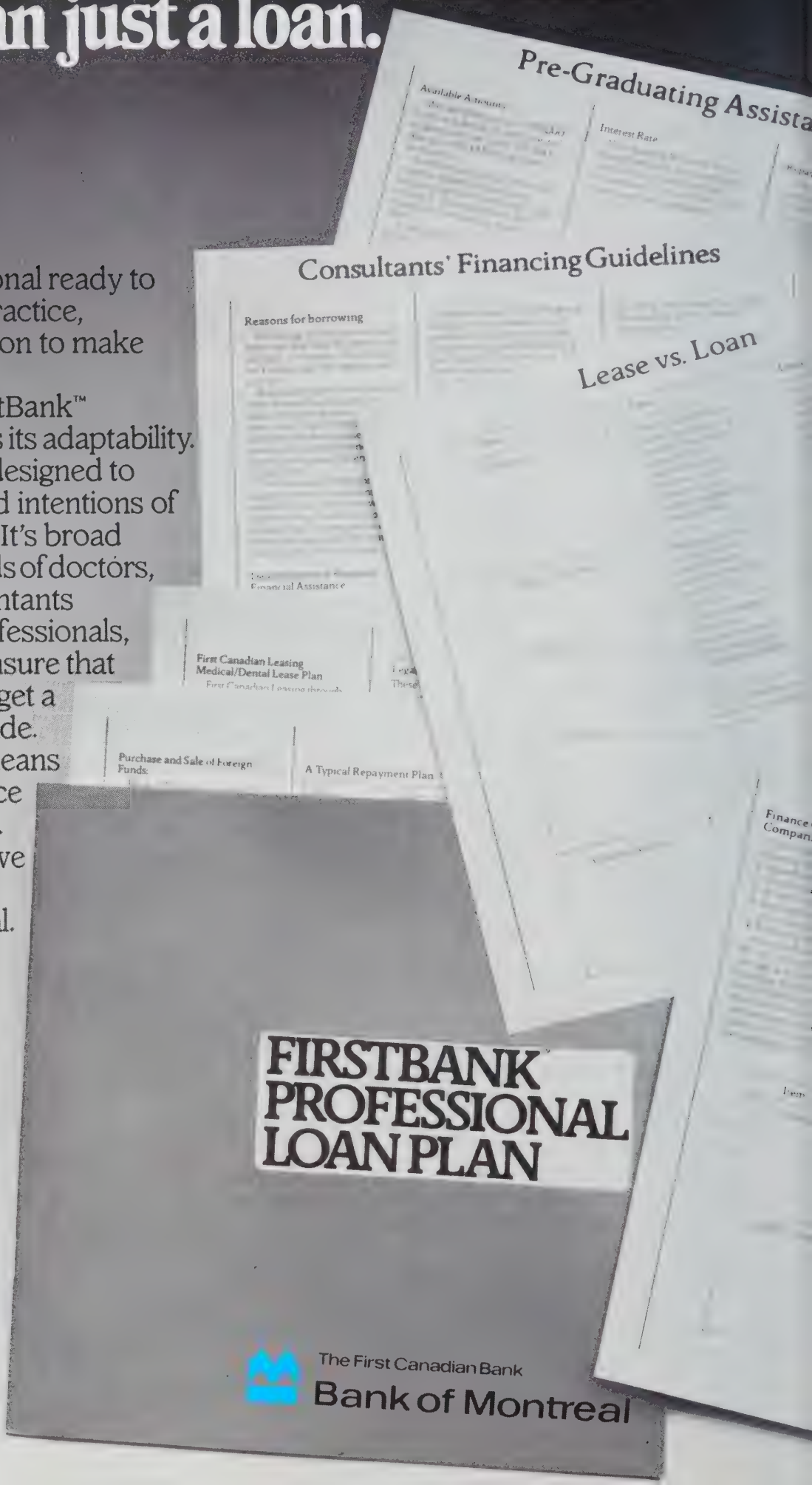


DEVELOPMENT OF A GERMICIDAL POLYCARBOXYLATE CEMENT

G. S. Beagrie, DDS, FDS, RCS(Edin), FRCD(C)
D. C. Smith, PhD, MSc, FRIC
Toronto

The requirements of adequate cavity cleansing are reviewed and research on a new germicial polycarboxylate cement presented. The bacteriocidal effects of different germicidal formulations are tabulated.

In the preparation of a tooth to receive a restoration, one of the final and most important steps, according to G. V. Black, was cavity toilet. The practice of using antiseptics of various types for this purpose has long been advocated[1] but mainly on an empirical basis.

With the introduction of the high speed rotary cutting instruments with air water sprays for tooth preparation, there has been a tendency to reduce "cavity toilet" to a secondary role of importance. The argument would appear to be that little by way of debris remains behind after such vigorous spraying of the cavity floor and walls during preparation. Recent studies on tooth preparation by Boyde and Knight,[2] Tronstad and Leidal,[3] and Brännström and Johnson[4] have shown that in fact a smeared layer of debris is usually left on the cavity surface. Since bacteria are capable of being carried into the cavity as well as out of it by such mechanical methods, the need for cavity medication need not have lessened but indeed could have increased.

Histological examination of dentine beneath the cavity floor has revealed that organisms may be present in the tubules even after excavation of soft dentine.[5-7] Several workers have also shown that bacteria can remain alive in dentine for up to one year after placing a restoration.[8-10] Other evidence of importance is that certain organisms placed in contact with freshly cut dentine can penetrate into the dentinal tubules.[11-15]

Because of these findings, attempts using many and various medicaments to disinfect tooth cavities have been made. Thus, Seltzer[16] advocated creosote, Hardwick[17] recommended heavy metals, especially silver nitrate, Turkheim[18] zinc oxide eugenol, Rubbo[19] a cement acting as a vehicle for neomycin, bacitracin and polymixin, while Schmidt et al[20] advocated a mixture of parachlorphenol and soluble penicillin. However, many of the medicaments which will kill bacteria also irritate the pulp. Phenol is an irritant[21] and silver nitrate was also shown to cause damage.[17,22,23] Recently, Brännström and Johnson[4] reported on the use of a new solution for the purpose of both cleaning the surface of the tooth and disinfecting the prepared dentine walls. The cleanser is a microbicidal one, consisting of chlorhexidine and dodeclydiamino ethyl glycine in a 3 per cent sodium fluoride solution. A 3 per cent solution of fluoride has been shown to be non-irritant to the pulp.[24-26]

The results demonstrated by Brännström and Johnson[4] have been very encouraging as a means of adequate cleansing of cut dentine. However, confirmation of these results is required. Preliminary findings indicate that cleansing may not be satisfactory in every case.

Since bacteria can persist in a viable state within dentine tubules after cavity preparation and cavity toilet,[8,9] it would be an advantage to seal the cavity with a cement which had germicidal properties. Such a material might also be of value as a root canal sealer. The benefits of such a cement should be both initial and long term. The present study was aimed at the development of a polycarboxylate cement which would have germicidal effects on the common bacteria associated with dental caries.

Materials and methods

Five organisms associated with dental caries infection were used to assess both the short and long term effectiveness of the test cements. These were all gram positive and consisted of *lactobacillus* (B4961), *streptococcus mutans* (LM-7), *candida albicans, enterococcus* (E-1) and *sanguis* organisms. Each were grown on blood agar plates on which they were exposed to the test cements.

The two basic cements examined were a zinc oxide aqueous polyacrylic acid combination and a modified version containing a proportion of alumina. To each of these was added 3 per cent of the selected bacteriocidal ingredients. The requisite amount of agent was added to the zinc oxide powder of the cement and mixed thoroughly in a Turbula mixer for several hours. A standard powder:liquid ratio of 2:1 was used to mix the cements in the usual way.

Three substances were selected as additives — benzethonium chloride, chlorhexidine acetate and 5-F-oxine. All of these agents have been shown to have inhibitory properties to the growth of oral organisms, and for the first two substances there is an abundance of literature on their use. The use of 5-F-oxine is less common. However, it has been shown to be an effective agent when applied as a varnish for the control of bacteria in infected dentine.[27]

The following mixtures were examined in two study sections:

Study 1

1. Zinc polyacrylate cement (control)
2. Zinc polyacrylate cement + chlorhexidine
3. Zinc polyacrylate cement + benzethonium chloride
4. Zinc polyacrylate cement + 5-F-oxine
5. Aluminated zinc polyacrylate cement (control)
6. Aluminated zinc polyacrylate cement + chlorhexidine acetate
7. Aluminated zinc polyacrylate cement + benzethonium chloride
8. Aluminated zinc polyacrylate cement + 5-F-oxine

Study 2

To test for possible synergistic effects of the respective germicidal agents, these were crossed over in an additional study. Furthermore, since the full name for 5-F-oxine is 5-Fluoro-8-hydroxyquinoline, it was decided to substitute 8-hydroxyquinoline for 5-F-oxine. The mixtures thus tested were as follows:

a. Zinc polycarboxylate cement (control)
b. Zinc polycarboxylate cement + 5-F-oxine + benzethonium chloride
c. Zinc polycarboxylate cement + 5-F-oxine + chlorhexidine acetate
d. Zinc polycarboxylate cement + benzethonium chloride + chlorhexidine acetate
e. Zinc polycarboxylate cement + 8-Hydroxyquinoline + benzethonium chloride
f. Zinc polycarboxylate cement + 8-Hydroxyquinoline + chlorhexidine acetate

Each cement mixture was subject to both short-term (48 hours) and long-term (six weeks) testing. Pellets of the mixed material were made to a standard size of 6 × 3 mm diameter cylinders. After setting, the pellets were sterilized for 24 hours in an ethylene oxide chamber and degassed for at least three days before use.

Both the test and control cements were inserted into the agar plate and incubated at 4°C and 37°C, with the exception of the *candida albicans* plates which were exposed at 4°C and room temperature.

To determine long-term effects of the cements, the same pellet was transferred every seven days for six consecutive weeks to an agar plate newly seeded with a subculture of the original organism. Germicidal qualities of the cement mixture were expressed in terms of the diameter of the zones of inhibition of bacterial growth seen around the cement pellets.

Physical testing of the cement mixtures for solubility, compressive and diametral tensile strength tests was carried out. For strength testing, cylindrical specimens 6 × 3 mm diameter were loaded to fracture after storage in water at 37°C for 24 hours, or seven days in an Instron testing machine at 5 mm/min crosshead rate. Six specimens were tested for each formulation. Solubility was measured by a disc dissolution method similar to I.S.O. R1566 for zinc phosphate cement.

Results

The results of the experiments will be presented in two segments. In Study 1 the reporting will concern the addition of single additives to the basic cement, and Study 2 will assess the synergism of two additives in the same base. In both studies, results of long-term and short-term experiments are presented as an average from three sets of tests at each time interval and graphically illustrated.

Study 1

Control zinc and aluminated zinc polycarboxylate cements were ineffective in preventing growth of either *candida albicans* or *enterococci* at the 48 hour time interval. For *enterococci* the most effective additive was chlorhexidine acetate in the aluminum based polyacrylate (Fig 1), while for *candida albicans,* benzethonium chloride was the only additive to produce a satisfactory result. Benzethonium chloride added to zinc polyacrylate cement produced inhibition to both *enterococci* and *candida albicans.* (Fig 2).

The additive 5-F-oxine on its own appeared to be best in inhibiting growth of *streptococcus mutans* (Fig 3) and *sanguis* organisms at both incubation temperatures with both base cements. It was also effective in control of lactobacilli, but completely ineffective in growth control of *enterococci* and *candida albicans.*

Study 2

Both short-term (48 hours) and long-term (6 weeks) results are likewise shown in graphic form. In the short term, a combination of either 5-F-oxine or 8-hydroxyquinoline plus chlorhexidine acetate was the best inhibitor mixture, with dramatic differences when compared with the control base cement. For sanguis organisms the best combinations were chlorhexidine acetate with either 5-F-oxine or 8-hydroxyquinoline (Figs 4 and 5). In the case of lactobacilli, benzethonium chloride or chlorhexidine acetate with 5-F-oxine or 8-hydroxyquinoline produced a similar short term result. Control of *candida* and *enterococci* was ineffective except through use of chlorhexidine acetate and benzethonium chloride in combination or with 5-F-oxine (Fig 6).

Long-term studies caused a dramatic fall off in the effectiveness of specimens containing 8-hydroxyquinoline when compared to 5-F-oxine. This is well demonstrated in Figs 7 and 8 for *streptococcus mutans.*

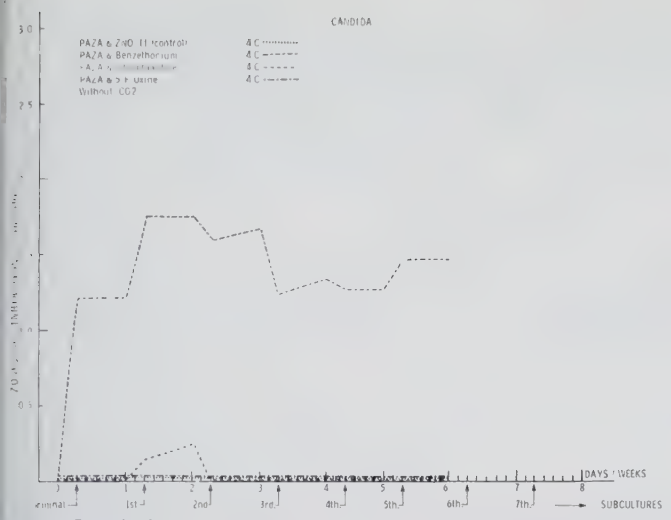


Fig 1 Graph demonstrating zones of inhibition by various experimental cements using *candida albicans* as the test organism.

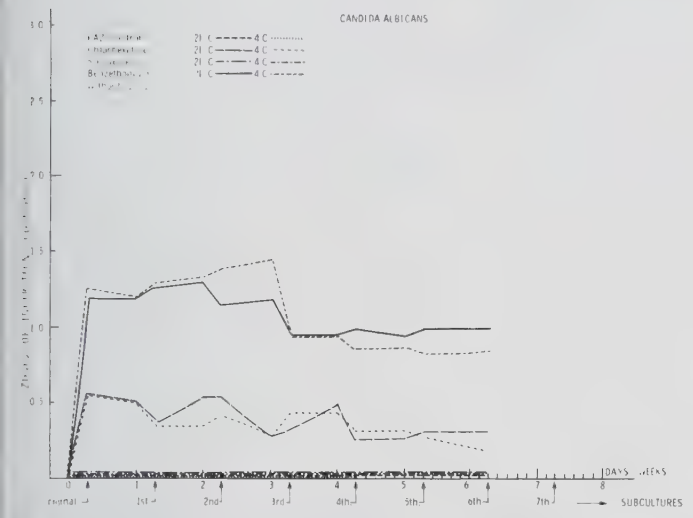
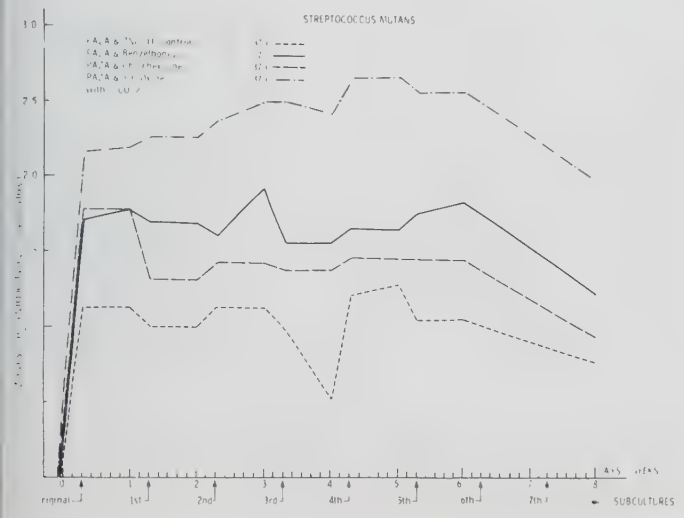


Fig 2 Graphic outline of the inhibition zone measurements of polycarboxylate cement with additives using *candida albicans* as test organism.

Fig 3 Graph showing zones of inhibition of growth of *streptococcus mutans* and aluminated polycarboxylate cement with additives.



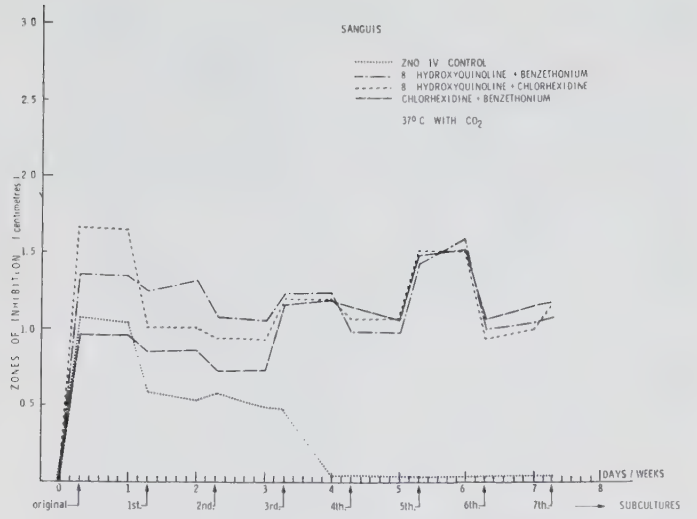


Fig 4 Inhibition zones shown for zinc polycarboxylate cement with 8-hydroxyquinoline and other additives using *S. Sanguis* as the test organism.

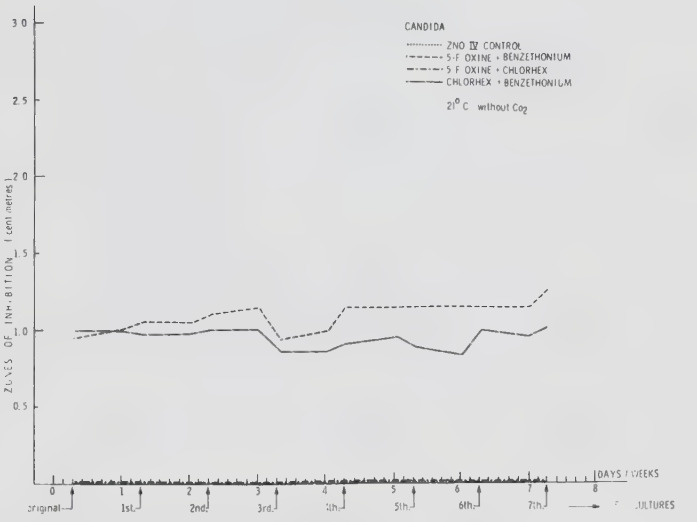
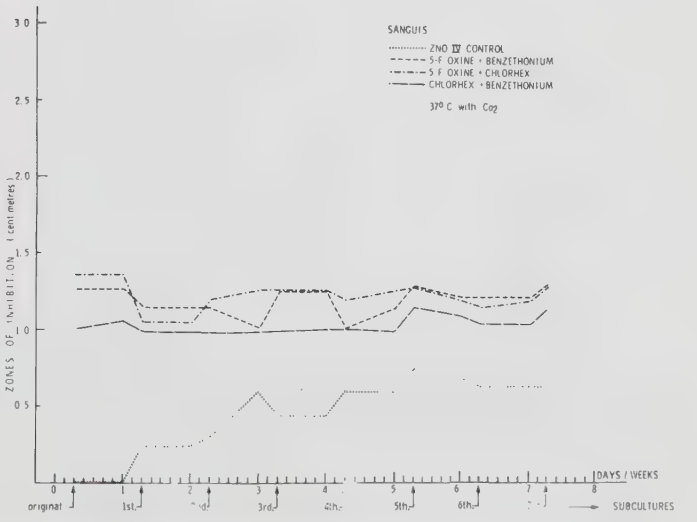


Fig 5 Graphic results of inhibition of *S. Sanguis* growth using 5-F-oxine, benzethonium chloride and chlorhexidine as additives to polycarboxylate cement.

Fig 6 Graph showing control agents against *candida albicans* growth.



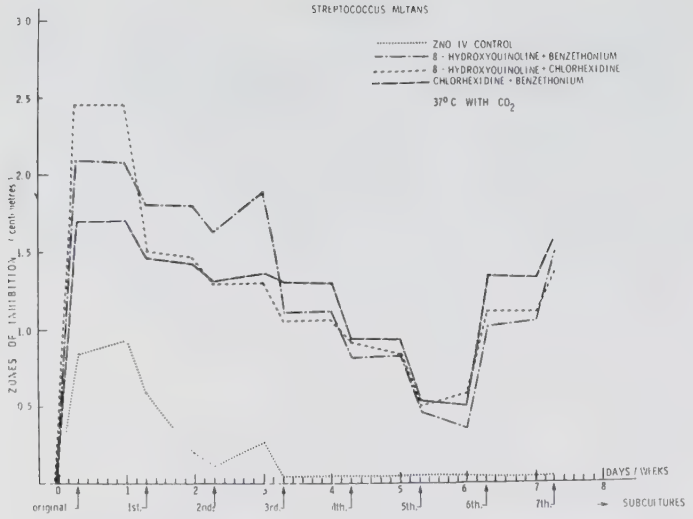


Fig 7 Graph demonstrating rapid fall off in activity of 8-hydroxyquinoline containing cement.

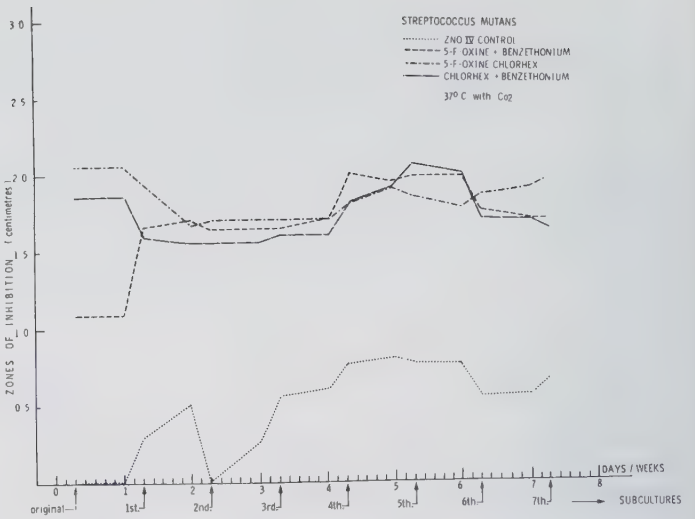


Fig 8 Graph illustrating the more stable germicidal effect of a cement containing 5-F-oxine. (Compare with Fig 7.)

Results of physical testing — Table 1

Test	Age of specimen (days)	Strength Kg/cm²							
		Zno IV	PAA 35TD	Zno IV 5-F-oxine benzeth	PAA 35TD	Zno IV 5-F-oxine chlorhex	PAA 35TD	Zno IV benzeth chlorhex	PAA 35TD
Compressive	7	730		380		520		440	
*S.D.		55		55		30		53	
**C.V. %		7		14		5		12	
Diam. tens.	7	80		50		50		40	
S.D.		10		9		10		9	
C.V. %		11		17		22		21	
Compressive	1	540		400		380		400	
S.D.		70		35		70		45	
C.V. %		12		9		18		11	
Diam. tens.	1	55		45		40		40	
S.D.		10		10		10		5	
C.V.%		19		24		28		13	
Solubility % (over 24 hr. period)	1	0.11		0.22		0.18		0.20	

* Standard deviation
** Co-efficient of variation

Physical testing

The results of physical testing are shown in Table 1. The compressive and tensile strengths are decreased and the solubility increased for the various admixed cements in comparison with the basic material.

Discussion

As previously indicated, there is need for an effective germicidal cement which, when used as a lining material in tooth cavities, will act as an inhibitor of bacterial growth under a restoration. From the results of these experiments, it would seem that the polycarboxylate cements with suitable additives will fulfil this purpose. The graphs of inhibition showed a very sporadic outline which is well illustrated in Fig 7. An explanation of this phenomenon would seem to be that with time the cement undergoes some dissociation at the surface; such an effect thus causing a release of more bacteriostatic agents and a concomitant increase in the zone of inhibition. In this regard, there was an apparent quicker dissociation of cements containing 8-hydroxyquinoline compared with those mixed with 5-F-oxine. This property would suggest that long-term lining and endodontic lute cements would best contain 5-F-oxine. By contrast, surgical pack cements, such as those used in periodontics, if they incorporated 8-hydroxyquinoline would dissociate more rapidly in the short term and give a beneficial high release of anti bacterial agents, such as chlorhexidine acetate or benzethonium chloride.

Although all cements tested caused inhibition of growth of the five selected organisms in this study for up to six weeks under stringent experimental conditions, the most effective cement was one incorporating 5-F-oxine and chlorhexidine acetate. There was an apparent release of the germicidal agents throughout the test time period which was sufficient to inhibit the growth of all bacteria tested. Since this phenomenon can also be expected within the tooth cavity, it is suggested that such a cement would be of great clinical benefit. The results of physical testing show that the presence of the additives substantially reduce the strength properties and increase the solubility. This may be due to the disruptive effects of the additives on the cement matrix. The strength values are still, however, well above the minimum required for a cavity lining material for resistance to amalgam condensation.[28] Since the amounts of additive were selected somewhat arbitrarily, smaller additions would result in higher strengths and perhaps a prolonged active effect. Thus, although to date, these experiments are confined to use of the cement as a cavity lining, it is envisaged that a similar material could lend itself adequately as a luting cement for inlays and crowns and also for endodontic obliteration of root canals. Further work in these areas is envisaged.

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EXPERTISE TRAUMA REPORT

Edward Silver, DDS
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The method of preparing a written report with regard to dental trauma is outlined.

From time to time, as dentists, we may find that we are asked either by the patient, insurance company or lawyer to complete an expertise report due to some trauma that an individual has had to his teeth and surrounding structure.

A proper sequence of events should be followed by the dentist in order to compile a complete, careful and accurate report. This report should be professional. Once it is sent to a lawyer or other connecting parties, it cannot be retrieved or re-drafted. Also, the dentist may have to testify in court. Any inaccuracies could hurt the patient (and the dentist).

Each dentist is cautioned never to "report" the verbal story of the patient. Instead, the patient should provide his own sworn statement to his lawyer or insurer, which will then become part of the total report the lawyer and insurer are compiling on his/her case.

Similarly, the dentist treating the patient prior to the accident and any other practitioners involved since the accident (hospital, specialists, etc.) must each provide their data to the patient or to the designated lawyer or othe representative as a report of their own. The current treating dentist should receive all pertinent reports to enable him/her to have a proper perspective of the trauma, the examination, and especially his treatment planning, due to the one critical restriction: to restore to the condition in existence before the trauma. The treating dentist will then append all these reports with his own and send them to the patient (or lawyer, etc.).

In drafting this type of report, only precise technical terms should be used, plus the International Tooth Numbering System (Table 1).

Part 1

Prior History

In order to obtain the factual history of the patient, the treating dentist must write to the patient's previous dentist requesting a written report (Example 1), complete with records such as radiographs, and including any chart or other information that will be an asset to the present dentist in his/her report. Exact details as to the following are imperative to establish accuracy:

a) Condition of every aspect of the mouth and the teeth prior to the trauma.
b) Which teeth were present.
c) Whether or not the patient was a regular patient, dental attitude, and level of care chosen.

Enclosed with this letter must be a (handwritten) letter from the patient (or parent/guardian) authorizing the previous dentist to release all pertinent information to assist the present dentist in compiling his report (Example 2).

Part 2

The treating dentist must restrict his report to his own observations, records, opinions, etc. Where quoting any patient's history, it must be clearly noted, the patient says "....."

The lawyer/insurer must obtain a sworn statement directly from the patient. The lawyer/insurer will also obtain a copy of any police report, etc.

The following pertinent information should be included in the treating dentist's report.

History of Trauma

a) Police report states (or patient says) the trauma occurred on .....
b) If taken to the hospital, the patient was seen by the following doctors and their reports are appended. (Each treating practitioner must provide his own report to the patient/lawyer/insurer or representative).
c) After the hospital visit or period (or if none), a brief review of dates, what treatments were performed and by whom, with the comment "see report appended", up until day of visit to present dentist. (There would be individual reports by each treating practitioner sent to the "present dentist".)
d) The day and time that the patient presented.

Letters similar to Example 1 (modified by changing "prior to" to "since") and Example 2, as a pair, should go out from the dentist writing the report to each doctor involved in the case.

Part 3

Present history

1. A complete examination and diagnosis usually involves:[1,2]

a) A full mouth series of intra-oral periapical radiographs, with or without bite-wing or occlusal films, as applicable.
b) Extra-oral radiographs (Panorex, lateral, posterior-anterior, etc.).
c) Tests (vitality, percussion, cold, heat, transillumination).
d) Study models.
e) Photographs (intra-oral, extra-oral).
f) Illustrations (sketches).
g) Other applicable records.

2. Extra-oral examination:

a) Examine for scars (describe size and location).
b) Bruising and lacerations of soft tissue.
c) Any abnormality, swelling (oedema), pathology.

3. Present findings in oral examination:

a) Teeth present.
b) Teeth absent.
c) Restorations present.
d) Restorations required (due to caries or breakdown of fillings due to age or other factors except the trauma).
e) Prosthetic appliances present.
f) General condition of the gingiva.
g) General condition of the bone.
h) Occlusion (centric and functional).
i) Function and condition of jaws and temporomandibular joint.
j) Apparent involvement of each tooth from the trauma:
   i) fracture type — (trauma classification, Ellis Class I, II, III, IV, V, or description)[3]
   ii) mobility
   iii) percussion
   iv) colour
   v) response to vitality testing
   vi) condition of any injured gingiva around tooth.
k) Apparent involvement of each prosthetic appliance from the trauma.
l) Any other apparent oral tissue involvement from the trauma.

4. Radiographic examination:[4]

a) Caries, endodontic treatment, or other factors regarding the teeth.
b) Fractures (tooth or bone).
c) Tooth displacement (intrusion/extrusion).
d) Any pathology.
e) Bone evaluation.

5. Treatment already performed by you as a result of the trauma.
6. Treatment plan for treatment needed as a direct result of the trauma, to restore the oral cavity to a state equal to that which existed before the trauma, not to restore the mouth to ideal health.

International tooth numbering system — Table 1

Permanent teeth

18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38

Primary teeth

55	54	53	52	51				61	62	63	64	65
85	84	83	82	81				71	72	73	74	75

Note: the first digit indicates the quadrant of the patient, and the second digit indicates the tooth number.

Permanent teeth	Quadrant upper right:	1
	Quadrant upper left:	2
	Quadrant lower left:	3
	Quadrant lower right:	4
Primary teeth	Quadrant upper right:	5
	Quadrant upper left:	6
	Quadrant lower left:	7
	Quadrant lower right:	8

Example 1. Doctor's request for release of information

Date

Patient's name and address

Dear Dr. _____

I am presently engaged in preparing a formal technical report with regard to the trauma which apparently occurred to the above-mentioned patient on _____ (date). To facilitate this, I would appreciate if you would send me by registered mail a full report including any and all charts or other information, radiographs, photographs, records etc. which would clearly show every aspect of his (her) existing detailed oral condition and treatment prior to his (her) trauma. Please specify dates where possible. An authorization from _____ is enclosed.

Thanking you in advance.

Yours very truly,

Example 2. Patient's authorization for release of information

(The patient should produce this in his own handwriting, during the first or second office visit.)

Date

Dear Dr. _____

I had a _____ accident on _____ (date). Now I require special reports relative to that, and to the detailed condition of my teeth and entire mouth prior to that, as well as since. This letter is your legal authorization to forward to Dr. _____ a complete report including records, giving all pertinent data re my dental history to date, as Dr. _____ has requested.

Thanking you in advance, I remain

Yours very truly,

(That option should be recommended to the patient but the added treatment would be at the patient's personal expense, and the patient should be clearly informed of the cost to him/her.)

For any specific problems, a specialist should be consulted (orthodontist, plastic surgeon, oral surgeon, periodontist, etc.). The specialist's letter/report should be incorporated into this expertise as an addendum.

7. Amount to be incurred by the patient for dental services due to trauma:

a) For your written report include:
   i) examination and diagnosis
   ii) intra-oral radiographs
   iii) extra-oral radiographs
   iv) study models
   v) photographs.

Costs for reports or records of other practitioners should be billed by each practitioner directly to the patient or his/her lawyer/insurer.

b) For your future reports.

c) For your treatment performed to date. (Each practitioner bills the patient directly for services rendered.)

d) For treatment planned, and related estimate:
   i) restorative dentistry (fillings)
   ii) periodontics
   iii) endodontics
   iv) prosthodontics — crown and bridge, prostheses (partial or complete)
   v) special treatments by your office. Any services and fee estimates by other practitioners (physiotherapy, speech-therapy, etc.) would be in their own reports.

e) A caution to the patient that fixed bridgework and/or dentures will need to be replaced at periodic intervals averaging at perhaps each five to ten years.[5]

Also composite restorations will need replacement at intervals. In addition, any special appliances will need replacement at individual intervals.

These future treatments will be at future fees subject to inflation in relation to current fees.

f) An advice to the patient that he/she allow for these eventualities (as listed in (e), and costs in the insurance settlement).

g) Re costs to be incurred if you are needed to testify in court.

The report is terminated with the following statement:

The appended reports are each certified as to their accuracy and validity by each individual practitioner or agency.

I hereby certify that to the best of my knowledge, my report, with all my attachments and enclosures, is true and valid, and this is signed herewith as a formal legal statement.

Appended are: (signed) _____

i) Report of Dr. _____re condition of mouth prior to accident
ii) Police report
iii) Hospital report
iv) Report of Dr. _____
v) Report of Dr. _____
vi) Report of Dr. _____

This report should be delivered by hand to the patient/lawyer/insurer, or possibly by bonded courier. If this is not possible or practical, then by registered mail. Copies of all records must be kept by the practitioner, and that cost is included in the cost of the report.

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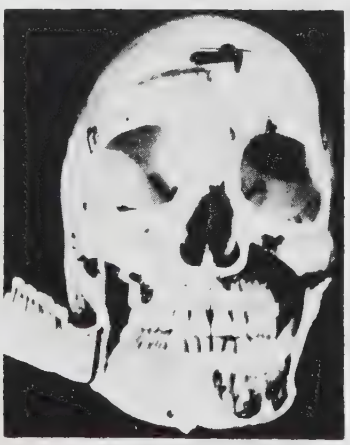

10-piece Demonstration skull (Natural bone)

All teeth are natural and original.
The calvarium is sectioned horizontally. The basal portion has been sagittally sectioned. One temporal is movable. A portion of the mastoid and squama has been removed, baring internal ear in full view. Tremendous care has been taken in the maxillae and mandible to expose the mysteries of the dentitions, the roots, the bony margin of the alveolar process, dental vessels and nerves reinstated artificially. A wonderful and vivid picture of the interior of the teeth is given by a sagittal section through the teeth from top to the roots on one side of the mandible. Dental anatomy is uniquely presented in this skull.

8 days inspection period. 10% of catalogue price all cost incl. $228.00. Carrying case $27.00 ea.

Crane Humain Naturel, 10 parties

Pour démonstration et étude de la denture et de l'osteologie cranio-faciale. Le crane naturel le plus complet avec la denture, la plus pure disponible à l'heure actuelle.

La mandibule est amovible et peut se retirer. La maxillaire supérieur et la mandibule sont ouverts d'un côté, permettant de voir les racines des dents avec leurs vaisseaux et leurs nerfs. Un côté du maxillaire supérieur présente une petite fenêtre; de l'autre une coupe sagittale des dents passe par les racines, donnant une réelle et merveilleuse vue de celles-ci. Toutes dents sont naturelles.

Osta Intern., 922 Keil Str., White Rock, B.C.

MOEBIUS SYNDROME

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A case of Moebius syndrome is presented with discussion of clinical features, etiology and treatment.

Moebius syndrome was described by Van Graefe and Saemisch[1] in 1880, before Moebius[2] in 1888 described the syndrome which bears his name. The complex consists of:

1. Congenital, usually bilateral facial paralysis.
2. Unilateral or bilateral loss of eye abductor function.
3. Anomalies of extremities including aplasia or hypoplasia of brachial and thoracic muscles.
4. Often involvement of other cranial nerves, including third, fifth, ninth, tenth, eleventh and especially the twelfth.
5. Occasionally mental deficiency accompanies the physical abnormalities.

Clinical manifestations of the syndrome

Facies — This is mask-like with the peculiarity that the seventh nerve paralysis often spares the lower face.

Eyes — There is: (1) inability to abduct; (2) ptosis in rare cases; (3) absence of adductor function with convergence present to variable degrees; and (4) rarely, oculo-motor paralysis. Absence of lacrimal caruncles and microphthalmia have been reported by Henderson.[3]

Ears — Ear deformities such as defective pinna and/or deafness.

Trunk and extremities — Most common is unilateral or bilateral club foot — 30 per cent, according to Henderson. Other deformities are syndactyly, digital agenesis, polydactyly, brachydactyly, valgus of phalanges, congenital dislocation of the hip. Bony and fibrous ankylosis of the interphalangeal joints have also been reported. Pectoral and brachial muscle defects occur in 15 and 20 per cent of cases, respectively. Aplasia of ribs, polythelia and mammary aplasia have been described in association with Moebius syndrome.

Skin — Facial anhydrosis and superficial hemangiomas have been reported.

Mental retardation — This occurs in 10 per cent of cases and is not usually severe.

Oral abnormalities — The lips are paralyzed less than the obicularis oculi. Atrophy, fasiculation and paralysis of the tongue are seen in 30 per cent of cases. Micrognathia and bifid uvula have been recorded by Henderson.[3] The muscles of mastication are rarely paralyzed.

Etiology — Little definite information is available. There is no unanimity of opinion as to the importance of heredity. Some familial cases have been reported by Van de Weil[4] but in the majority of cases there is so family history. Approximately 150 cases have been reported to date. Considerable discussion has occurred in published papers as to whether the abnormalities are based primarily on failure of muscle development with secondary nuclear agenesis or vice versa. In only a few cases has histopathologic evidence been presented. Henderson[3] reviewed 60 cases and takes the view that agenesis of nerve nuclei is the underlying cause, and quotes histopathologic evidence in a few cases to support this. Evans[5] favoured the theory of abnormal development of muscles derived from the first and second branchial arches. Van Allen and Blødi,[6] however, point out that in the few autopsy cases, abnormalities of the brain stem were found. Abnormal findings have been reported in pneumo- and electroencephalograms. These facts cannot be explained by secondary nuclear degeneration. Further, their own electro-myographic studies of the case provide evidence for supra-nuclear and inter-nuclear lesions as a cause for ophthalmoplegia in these cases. Irregular firing of motor units in the paralyzed lateral recti were recorded. Paralyzed eyes, in their case, could be moved passively and a section of lateral rectus removed showed normal histologic appearance. The eyes showed no response to vestibular stimulation. These authors point out that occasionally congenital muscular dystrophy may present with similar signs and symptoms to those of Moebius's syndrome and that distinction should be made between the two superficially similar conditions.

Goldsztajn and Reichowa[7] also made electromyographic studies of a case with similar findings. In addition, no bioelectrical activity was demonstrated in the facial mus-

Fig 1 The small lower jaw is evident.

Fig 2 The right eye cannot be completely closed.

cles. Olson et al[8] showed electromyographic evidence of lower motor neuron defects in the facial and limb mucles. Jacobs,[9] in a study of the embryology of human fetuses, showed how differentiation of neuroblasts proceeds caudally and laterally in the facial nucleus and rostrally and ventrally in the trigeminal nucleus. The continguous parts of these two nuclei thus differentiate early and she suggests that these elements of the seventh and fifth nerves differentiating together, spacially and temporally, innervate the phylo-genetically primitive jaw muscles, digastric (both bellies), mylohyoid and stapedius. The upper facial musculature is innervated by later differentiating migrating neuroblasts, and in fetuses examined up to 21 weeks, the abducent nuclei were the most immature of all pontine cranial nerve nuclei. Migration of the trigeminal nuclear complex is completed by eight weeks but the facial not until 10 weeks. This temporal spacing of development of the abducent and parts of the facial and trigeminal nuclei might explain how disturbance in the development of the pontine nuclei at about the ninth week of gestation might affect the abducent nucleus and the upper facial muscles relatively more severely than the lower facial muscles. While abnormality of bulbar nuclei might be caused by relatively localized defects, perhaps of a vascular nature in the region of the pontine flexure, this would not explain the occurrence of stigmata of the syndrome at sites other than the head and neck. The teratology of talipes, for example, is not at variance chronologically with bulbar nuclear agenesis. Fraser[10] points out that in such lesions as oligosyndactyly, abnormality of the primitive extremity is seen early in development with reduction of mesodermal elements. This shortage of mesenchyme is the cause of a definitive abnormality, which is displayed as development of the fetus is completed. He further points out that a mutant gene, by affecting development at various sites, is as likely to be the cause of such abnormalities as environmental teratogens.

Treatment

Apart from treatment for club feet and syndactyly along well established lines, dental and maxillo-facial treatment may be required to restore form and function to the face. The most difficult problem in this respect is the facial weakness. Fortunately, most patients seem to have sufficient function to avoid problems with the cornea. Occasionally, lower facial weaknesses cause drooling and difficulty with eating. In this case, static slings may be used to restore a degree of labial competence.[11] There is difficulty in applying the principle of muscle grafting ac-

Fig 3 Severe clubbing of the feet.

Fig 4 Small tongue and shallow lingual and labial sulci.

cording to the method of Thompson,[12] because of the bilateral abnormality of innervation. Dental treatment is complicated by the lack of oral function causing malocclusion, caries and periodontal disease. Micrognathia may be treated by a number of well tried methods.[13]

Case report

The patient, a 33 year old male of above average intelligence, presented in 1970, complaining of difficulty in chewing and, on examination, apart from the obvious stigmata of Moebius syndrome, was seen to have a small lower jaw and tongue with a Class II malocclusion and ankyloglossia (Fig 1). The eyelashes were fine and the irides showed arcus senilis. Figure 2 shows the patient attempting to close his eyes; the right eye cannot be completely closed. The only abnormalities found other than in the head and neck were thoracic scoliosis and severe clubbing of the feet (Fig 3). Examination of the cranial nerves revealed the following:

Third nerve — adduction of the eyes was restricted but occurred during accommodation.

Fifth nerve — the muscles of mastication were poorly developed.

Sixth nerve — there was complete bilateral lateral rectus palsy.

Seventh nerve — there was bilateral facial weakness with relative sparing of the lower face.

Twelfth nerve — the tongue was small and could not be protruded beyond the lips due to a median tongue-tie.

The only family history of any similar abnormalities was that the patient's father was said to have had a small jaw.

Fig 5 Appearance after prosthetic surgery and new dentures.

In 1970 the tongue-tie was released, all carious and periodontally diseased teeth were removed and immediate replacement dentures fitted. Figure 4 shows the small tongue and shallow lingual and labial sulci following surgery.

In October 1973, because of difficulty with his dentures, the patient underwent a further procedure for sulcus deepening and epithelial inlay to lingual and labial sulci. Following this procedure, the patient was able to wear new dentures with comfort, and improvement in function and appearance (Fig. 5).

The author would like to thank Mr. Gordon Fordyce, consultant oral surgeon at Mount Vernon Hospital, Northwood, Middlesex, England, for allowing him to report this case.

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MANIFESTATIONS SYSTEMIQUES DE LESIONS BUCCALES

Paul Simard, DDS, DDPH, FRCD(C)
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Note: Cet article, sans en être un de vulgarisation, a été rédigé de façon à en permettre l'accessibilité aux profanes, dans le but de les informer de l'importance de la santé buccale.

La littérature médico-dentaire fait une large part aux manifestations buccales des maladies systémiques. Cet énoncé est bien mis en évidence, à titre d'exemple, dans la livraison de janvier 1971 de la publication *Post Graduate Medicine* (37). L'on y traite entre autres des manifestations orales des maladies infectieuses, métaboliques, dermatologiques, myélo-prolifératives ainsi que celles des maladies du tissu conjonctif. L'observation clinique de la part des professionnels de la santé qui s'intéressent à l'appareil buccal — surtout les dentistes — leur a permis d'établir cette évidente et irréfutable corrélation.

Le monde médical et dentaire a beaucoup moins scruté cependant les manifestations systémiques des lésions buccales, exception faite des endocartites d'origine dentaire. Nous croyons qu'il devient impérieux de faire un inventaire des connaissances en ce domaine dans le but de départager les données qui reposent sur une base scientifique de celles qui relèvent plutôt de la spéculation.

INFECTIONS

Il est incontestable que les manifestations à distance d'origine buccale les plus fréquentes sont de type infectieux.

Le terme *foyer d'infection* désigne une zone circonscrite de tissu envahi par des micro-organismes à la fois pathogènes et exogènes; elle est habituellement localisée à proximité d'une surface cutanée ou muqueuse (40).

On peut retrouver ces foyers d'infection à divers niveaux de l'organisme. Klotz en donne une liste exhaustive qui inclut pratiquement tous les systèmes (22). Les infections qui intéressent plus particulièrement la bouche peuvent être classées d'après leur localisation:

a) *sites ouverts:* périodontites chroniques, poches gingivales distales aux troisièmes molaires, infections résiduelles après avulsion, fistules oro-antrales, etc.
b) *sites fermés:* kystes radiculaires, dentigères et multiloculaires infectés, racines résiduelles infectées, abcès alvéolaires chroniques, pulpe infectée occasionnant des lésions péri-apicales, granulomes, kystes, ostéites.

Les complications des foyers d'infection buccale se manifestent soit localement, par propagation directe, soit à distance; on parle alors d'infection focale.

Depuis l'avènement des antibiotiques, les complications locales d'importance associées aux cellulites et à l'atteinte de certains espaces tissulaires, tel le sous-maxillaire et le rétro-pharyngien, sont plutôt rares. Tel est le cas de l'angine de Ludwig; elle doit tout de même retenir l'attention car elle est une des plus importantes infections qui se propagent par la voie des espaces tissulaires.

L'angine de Ludwig représente une forme très sévère de cellulite au niveau des espaces sous-maxillaire et sublingual, avec possibilité de diffusion subséquente aux facia cervicaux profonds. Environ 60 à 80% des angines de Ludwig sont attribuables à l'extension d'une infection dentaire à l'espace sous-maxillaire en provenance habituellement de la région des molaires inférieures. L'on cite aussi, comme étiologie possible, les fractures complexes de la mandibule, les lacérations de la muqueuse du plancher de la bouche, les blessures par armes à feu et les amygdalites (19).

La gravité de cette affection vient des complications sérieuses qu'elle peut entraîner: médiastinite (34, 13), pneu-

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monie par aspiration, septicémie et surtout asphyxie par oedème de la glotte. Son traitement revêt donc un caractère d'urgence.

Certaines infections intra-crâniennes peuvent être d'origine dentaire; au nombre de celles-ci l'on compte, par ordre de fréquence, les thrombo-phlébites du sinus caverneux, les abcès et empyèmes cérébraux et, possiblement, l'association de ces trois affections (42). Hollin et Gross notent, d'après leurs études cliniques, qu'environ 7% des thromboses des sinus caverneux et 4% des abcès et empyèmes cérébraux sont consécutifs à des infections dentaires (15).

La plupart du temps ces pathologies surviennent à la suite d'extraction de dents en milieu infecté, surtout des troisièmes molaires; la propagation de l'infection se fait par voie directe au plexus ptérygoïdien et par dissémination hématogène au parenchyme cérébral (28). La communication du système veineux facial avec celui des sinus cérébraux par la veine angulaire et les veines ophtalmiques demeure une autre possibilité de diffusion intra-crânienne de l'infection.

L'abcès, ou empyème, peut aussi se diffuser par voie directe en empruntant les sinus nasaux ou para-nasaux ou encore la zone des muscles de la mastication pour atteindre la base du crâne, puis les leptoméninges et enfin le cerveau lui-même.[15]

Le terme d'infection focale désigne aussi l'apparition et/ou l'exacerbation de maladies systémiques à partir d'un foyer d'infection primaire, dentaire ou autre. Cette théorie a connu une grande popularité au début du siècle à la suite surtout des expériences du bactériologiste Rosenow.[22,18] Ce dernier est parvenu en effet à reproduire chez des animaux de laboratoire des maladies systémiques, comme la fièvre rhumatismale, en leur injectant des extraits tissulaires provenant de personnes atteintes de telles infections.

A la suite de la publication des travaux de Rosenow, le monde médical et dentaire s'est livré à fond à la chasse des foyers d'infection, avec le résultat que le nombre des amygdalectomies, des chirurgies radicales des sinus et des avulsions dentaires massives — au moindre signe d'affection péridentaire — s'est élevé en flèche.

Cette théorie a toutefois perdu graduellement de la vogue avec l'élargissement dee connaissances dans le domaine de la bactériologie.[18] Il n'en demeure pas moins qu'elle suscite encore aujourd'hui de nombreuses controverses. La littérature médicale européenne a toujours manifesté beaucoup d'intérêt pour cette thèse; ainsi Lepoivre et Raison ont consacré la majeure partie d'un volume plutôt récent à la discussion des infections focales.[27] Par contre la littérature nord-américaine aborde la question avec circonspection en raison de la pénurie de preuves scientifiques de cette théorie, exception faite de rares cas, dont l'endocardite bactérienne.

Nombre de théories ont été mises de l'avant pour expliquer la pathogénie de l'infection focale.[22] Deux méritent de retenir l'attention: a) la métastase des micro-organismes d'un foyer infectieux par voie hématogène; b) la réaction de type immunologique. Suivant la deuxième hypothèse, les antigènes microbiens en provenance d'un foyer d'infection causeraient d'abord une altération des tissus à distance, qui serait suivie par après d'une réaction immunologique de l'organisme à l'endroit des cellules lésées. D'autres théories sont bien décrites par Hunter[17] et par Mezl.[31]

La théorie de la métastase microbienne par voie sanguine demeure d'actualité. Ainsi l'on rapportait récemment trois cas de relation possible, et même probable, entre des interventions dentaires en milieu infecté et l'infection subséquente de prothèses complètes de la hanche.[39] Les patients observés n'avaient manifesté aucun signe d'infection au cours de longues périodes de temps qui suivirent l'implantation des prothèses, et ce jusqu'au moment des opérations dentaires. Même s'il n'existe pas encore de preuve scientifique de cause à effet, l'auteur est d'avis que la séquence des événements laisse présumer une relation positive. Cette hypothèse ne répugne pas puisque la littérature médicale a déjà fait état de nombreux cas d'infection de prothèses de la hanche consécutive à des infections des reins, des poumons, du tractus intestinal de même que des dents.[3] Par ailleurs Donoff rapportait assez récemment qu'une infection du plancher de la bouche avait occasionné une septicémie avec état de choc.[6]

L'endocardite bactérienne sub-aiguë est souvent attribuée aussi, d'après nombre d'auteurs, à des maladies infectieuses de la bouche. Cette grave affection cardiaque est caractérisée par la présence de colonies bactériennes aux valvules cardiaques. Elle entraîne une déformation valvulaire chronique et secondairement une insuffisance cardiaque. Cette maladie est encore relativement fréquente de nos jours, quoiqu'en régression et de manifestation variable.[36,42,23,21,44]

L'on distingue dans l'étiopathogénie de cette maladie des facteurs prédisposants et des facteurs précipitants. Les premiers se caractérisent par une atteinte valvulaire antérieure comme le rhumatisme articulaire aigu, une maladie cardiaque congénitale, l'artériosclérose cardiaque ou encore l'implantation de valvules artificielles.[7] Dans 36% des cas cependant, le coeur des patients fonctionne normalement d'après Falace et Fergusson.[11] Les facteurs précipitants revêtent la forme de foyers d'infection, entre autres des voies respiratoires, des voies urinaires, de plaies, de fractures. Fait très important à signaler, les foyers d'infection d'origine dentaire représentent une importante proportion de ces facteurs déterminants, leur fréquence variant de 10 à 26% suivant les auteurs.[11,36]

Les bactéries responsables sont fréquemment des streptocoques du groupe alpha-hémolytique.[38,12] Ce groupe de bactéries se retrouve dans la flore buccale et comprend entre autres le streptocoque mutans, le streptocoque viridans et ses variantes comme le streptocoque mitis et le streptocoque sanguis.[36] D'autres types de bactéries peuvent être responsables d'endocardites et ce sont tout particulièrement les entérocoques, que l'on répère dans la bouche, surtout dans les crevasses gingivales.[38]

L'endocardite bactérienne consécutive à une bactériémie originant de foyers d'infection buccale peut être déclenchée par des interventions dentaires allant du simple brossage et

de l'utilisation d'un appareil à ultra-sons en milieu inflammé à tout acte chirurgical, que ce soit un curetage, une exodontie ou une gingivectmie.[33,10,7,24] L'on a récemment déclenché des endocardites chez des lapins à la suite d'interventions dentaires en milieu buccal infecté de streptocoques.[1] Une étude de Timosca indique que la fréquence des bactériémies après les avulsions dentaires s'élève jusqu'à 65% et confirme la corrélation entre cette intervention chirurgicale et l'endocardite aiguë.[43] Pour leur part, Cates et Christie, Kahn, Perrin et Fleurette, cités par Timosca,[43] ont respectivement observé une incidence de 48, 55 et 66% d'endocardite consécutive à l'extraction dentaire. Fait à noter, l'incidence des bactériémies survenant à la suite des traitements d'endodontie est de beaucoup moins élevée que celle occasionnée par des traitements de périodontie ou d'exodontie.[2,30,9]

Les lésions péridentaires forment les foyers les plus fréquents d'infection buccale. La fréquence des troubles péridentaires est en effet plus grande que celle des affections péri-apicales; d'autre part la crevasse gingivale ulcérée, en plus d'être un milieu de culture idéal pour la flore bactérienne, est beaucoup plus exposée au traumatisme masticatoire que ne l'est une lésion péri-apicale; elle présente aussi une surface d'absorption plus étendue et mieux vascularisée.[10] La mobilité d'une dent dans son alvéole de même que le simple massage d'une gencive inflammée sont susceptibles de causer une bactériémie à la suite de la rupture des capillaires et du pompage des bactéries par aspiration veineuse. Nombre de travaux de recherche démontrent l'étroite corrélation entre les périodontopathies et les bactériémies post-chirurgicales. Elliot a observé, le premier, une bactériémie post-exodontique chez 86% des sujets atteints de périodontopathie alors qu'elle n'était que de 25% pour les patients ne présentant pas d'affection péridentaire.[35,14] Les auteurs sont donc généralement d'avis qu'il existe une nette corrélation entre l'endocardite bactérienne subaiguë à streptocoque viridans et les infections d'origine buccale. Autant cependant observe-t-on une divergence d'opinion sur l'origine des autres lésions considérées par certains comme infections focales. Ces dernières comprennent le rhumatisme articulaire aigu, l'arthrite rhumatoïde, des affections oculaires, gastro-intestinales, cutanées et rénales. La raison pour laquelle ces maladies ne sont pas considérées par tous les auteurs comme des infections focales vient du fait que leur étiopathogénie ne se réfère qu'à un concept d'hypersensibilité des tissus à des bactéries que l'on ne peut identifier dans la circulation ni rattacher spécifiquement à un foyer d'infection. Le rhumatisme articulaire aigu et l'arthrite rhumatoïde illustrent bien cette assertion. Ces maladies, dites du collagène, affectent en effet le collagène à divers niveaux de l'organisme y compris les articulations et, dans le cas du rhumatisme articulaire aigu, le coeur. Le facteur déterminant semble être un foyer d'infection à streptocoques hémolytiques du groupe A sans présence toutefois de bactériémie. Ces bactéries sont mises en cause dans l'hypersensibilité tissulaire des organes intéressés car l'on observe dans le sang un taux d'antigène correspondant.

D'autres maladies sont qualifiées d'infections focales, comme la glomérulonéphrite post-streptococique; cette dernière serait attribuable à une hypersensibilité au streptocoque hémolytique du groupe A qui se loge fréquemment dans les cryptes amydaliennes. Ces bactéries se retrouvent rarement dans les infections dentaires,[40] constatation qui infirme la thèse d'infection focale d'origine buccale en ce qui a trait du moins à ce type microbien.

Certains auteurs comme Morse[32] rapportent les opinions d'allergistes à l'effet que l'urticaire et certaines réactions cutanées de forme allergique sont dues à des foyers d'infection dentaire; Sormany et Bartha, cités par Klotz, partagent cet avis pour ce qui est des uvéites.[22]

La lumière est donc loin d'être faite en ce qui touche les infections focales d'origine dentaire. Aussi les opinions sont-elles très partagées. Les scientifiques nord-américains sont peu enclins à souscrire à cette thèse d'infection focale beaucoup plus répandue en Europe. La preuve est cependant établie que l'endocardite bactérienne peut être causée par une bactériémie de provenance buccale. Elle se révèle donc de la première importance pour le dentiste.

TROUBLES DIGESTIFS

Le monde médical et dentaire s'accorde sur l'importance primordiale de la mastication pour assurer une digestion normale. La population en général cependant n'est pas assez imformée des troubles occasionnés par l'absence totale ou partielle de dents qui se manifeste surtout par des retards de digestion et la flatulence post-prandiale.

L'insuffisance de la mastication des aliments peut occasionner par ailleurs le syndrome dit de la *coronaire-café*, dû à l'obstruction des voies respiratoires par des aliments.[20]

Le mauvais état de l'appareil masticatoire, le manque complet ou partiel de dents, l'inadaptation des prothèses[20] sont autant de facteurs qui concourent à la mastication inadéquate des aliments préalable à l'apparition du syndrome de la *coronaire-café*.

L'on s'interroge encore sur la possibilité de corrélation entre l'ingestion importante de pus chez les patients atteints de périodontopathie grave et diverses inflammations du tractus gastro-intestinal comme les gastrites et les colites. Selon certains auteurs, la très haute acidité des sécrétions gastriques constituerait une barrière à toute agression bactérienne.[40] Toutefois, d'après d'autres, les variations de sécrétion gastrique suivant les individus et les diverses heures du jour pourraient expliquer que les pédiodontopathies occasionnent des troubles digestifs. Il reste que ces théories reposent actuellement davantage sur la spéculation que sur des données scientifiques.

CONSEQUENCES DE LA MALOCCLUSION

L'occlusion déficiente, cause de douleur et de mauvaise mastication, peut à coup sûr entraîner des troubles digestifs

au même titre que l'absence de dents. Les conséquences les plus graves de malocclusion sont cependant attribuables au stress qu'elle provoque à la longue.

L'appareil de la mastication est une entité physiologique englobant dans une interrelation très étroite les dents, les muscles masticateurs et l'articulation temporomandibulaire.[26]

L'équilibre de ce système revêt une grande fragilité. Les terminaisons des nerfs proprioseptifs en périphérie des dents présentent une telle sensibilité aux variations de pression, même les plus minimes, qu'une infime interférence d'une seule dent suffit à perturber le fonctionnement des muscles qui tendent à replacer la mandibule en occlusion normale.[4] La fatique musculaire qui s'ensuit peut produire des troubles divers. Ainsi une contraction prolongée est susceptible d'engendrer un spasme douloureux du muscle lui-même ou de son antagoniste. La tension musculaire consécutive à un débalancement de l'occlusion peut aussi causer le bruxisme dans un but, somme toute, d'élimination de l'interférence.[4] De plus, la dysfonction des muscles mandibulaires affecte occasionnellement les muscles postérieurs de la tête et du cou et même des épaules.

De semblables anomalies donnent naissance au stress qui se manifeste de diverses façons, à partir d'une simple accélération de l'usure des dents jusqu'à une douleur très vive à divers niveaux. Elle peut paradoxalement se présenter sous forme d'otalgie ou d'algie dentaire classique. En d'autres occasions le stress se manifeste par des céphalées, prises pour des migraines, d'une intensité telle que le patient recourt de façon constante à une médication de plus en plus forte en vue d'atténuer la douleur. Chez certains sujets, l'on diagnostique des troubles psychosomatiques alors que d'autres, à la suite de cette algie chronique, se croient atteints de cancer.[26,4]

CANCER

Il va de soi que le cancer buccal, comme toute autre forme de néoplasme, doit être considéré comme une maladie systémique. De prévalence relativement élevée, les tumeurs malignes de la bouche représentent, dans la plupart des pays de l'hémisphère occidental, jusqu'à 5% de l'ensemble des cancers.[29] Le plus fréquent des cancers primitifs de la cavité buccale (90%) est l'épithélioma malpighien. Le Fichier des tumeurs du Québec, tenu par le ministère des Affaires sociales, rapporte en moyenne 250 nouveaux cas par année.

En dépit de la recherche intensive en ce domaine, l'étiologie précise du cancer demeure inconnue car l'on ignore le mécanisme de déclenchement de la prolifération anarchique des cellules malignes. Les données épidémiologiques révèlent cependant que, suivant divers paramètres comme l'âge, le sexe, l'hérédité, l'homme réagit quelque peu différemment à certains facteurs,[5] dits carcinogènes, qui concourent d'après toute probabilité au développement du cancer. Dans le cas du carcinome malpighien de la cavité buccale — le plus fréquent des cancers oraux — les facteurs cancérigènes qui retiennent le plus l'attention sont le tabac, l'alcool et la mauvaise hygiène buccale. Les cliniciens observent en effet cette très fréquente association tabac - alcool - hygiène déficiente dans l'incidence du cancer.[29]

Il devient de plus en plus évident que des facteurs isolés, comme le tabac ou la mauvaise hygiène buccale, pris séparément, n'occasionnent pas le déclenchement d'un cancer de la bouche. Il est cependant plausible de penser que ces mêmes facteurs prédisposants, lorsqu'associés, peuvent être à l'origine du cancer: l'hygiène déficiente favoriserait la stase sur la muqueuse buccale de produits cancérigènes provenant du tabac. Une semblable hypothèse, toute logique qu'elle soit, reste toutefois à prouver par des travaux scientifiques.

Les manifestations sytémiques du cancer buccal se comparent à celles de tout autre type de tumeur maligne. L'on a déjà cru, à tort, que les néoplasmes de la cavité buccale ne présentaient pas de métastases sous-claviculaires. Bien que les métastases viscérales soient peu fréquentes, en comparaison avec d'autres tumeurs, le taux des métastases à distance, surtout au niveau des poumons, peut s'élever jusqu'à 55%.[16]

La survie globable, à 5 ans, dans le cas des cancers buccaux, se situe à un bas niveau, soit à 32%.[25] La détection précoce peut cependant porter l'élévation de ce taux jusqu'à 60%.[41] L'on ne saurait donc trop insister, une fois de plus, sur le rôle primordial qui incombe aux dentistes dans le diagnostic précoce du cancer.

TROUBLES DE COMPORTEMENT

Il est manifeste que des affections dentaires sont souvent à l'origine de troubles de comportement. Même si cette assertion ne s'appuie pas sur une documentation très riche en travaux scientifiques, elle est largement partagée par des praticiens d'expérience. Ce phénomène par ailleurs fait l'objet d'observations courantes de la part de titulaires de classe, d'infirmières scolaires, de travailleurs sociaux, de psychologues et psychiâtres qui sont en fréquent contact avec les enfants.

Nombre d'anomalies peuvent être à l'origine de problèmes psycho-somatiques, à compter des caries et des taches très apparentes au niveau des incisives, des gencives gonflées et saignantes jusqu'à la proalvéolie supérieure et le prognathisme prononcés ou encore le chevauchement marqué des dents. En raison même de l'évidence de ces affections, les personnes qui en sont affligées deviennent rarement indifférentes à de telles atteintes à leur ego et manifestent avec plus ou moins d'intensité des réactions très diverses. Certaines évitent le plus possible de sourire, encore plus de rire, et même d'adresser la parole. D'autres, au moment de parler, feront de grands efforts pour abaisser le plus possible la lèvre supérieure, ou se pencheront la tête ou se placeront la main devant la bouche. Cet état de malaise constant entrave le plein développement de la personnalité.

Les troubles de comportement deviennent encore plus graves lorsque les anomalies sont cause de dérision, de quolibets et même de molestation, surtout — il va de soi — chez les enfants. L'on peut aisément comprendre les problèmes émotifs d'enfants affublés, à titre d'exemples, de *dents de lapin* (proalvéolie supérieure), de *mâchoires en bénitier* (proghathisme), de défaut d'élocution en raison d'un frein anormal de la langue, d'absence ou de malposition de dents. La correction des défauts physiques apparents apporte, règle générale, un changement de la personnalité et du comportement des individus qui vainquent leur timidité, acquièrent une plus grande confiance en eux-mêmes, communiquent avec plus de facilité et s'intègrent mieux à la société.

La perte des dents et la nécessité de porter des prothèses occasionnent un choc psychologique sérieux chez une foule de personnes. Surtout chez celles qui, franchissant l'âge critique, sont enclines à relier cette *castration* à la perte de leur jeunesse et de leurs attraits physiques et sexuels. . . . Les dentistes constatent de façon courante que les *porteurs de prothèses* deviennent fréquemment des *patients-problèmes,* perpétuels insatisfaits qui exigent à répétition des retouches à leurs prothèses, même si elles sont fonctionnelles et esthétiques. Ces patients, qui se retrouvent chez les personnes supportant mal la solitude et le vieillissement, sont ordinairement aux prises avec des problèmes d'ordre psychique.[45]

Dworkin,[8] qui est à la fois docteur en médecine dentaire et en psychologie, conclut:

Fluctuations in emotional adjustment, or maladjustment, then, may have concommitant changes in the hard and soft tissues of the mouth, as the common usage of the term psychosomatic would suggest. It should be pointed out, however, that severe dental disease may itself act as the precipitator of specific behavioral changes.

CONCLUSION

L'étude de la littérature sur les manifestations systémiques des anomalies buccales met en évidence la pénurie de données à base rigoureusement scientifique et l'urgente nécessité de recherches cliniques en ce domaine.

Il n'en demeure pas moins que la présente investigation fait ressortir une fois de plus l'évidente corrélation qui existe entre l'appareil bucco-dentaire et l'ensemble de l'organisme. D'où l'importance de prendre les dispositions pour assurer la conservation de la bonne santé de la bouche et des dents et le traitement hâtif des lésions qui y font leur apparition. De même l'on se doit de traiter toute affection, congénitale ou acquise, afin d'éviter la propagation de l'infection, les troubles d'occlusion, de digestion et même de comportement. De plus, il se révèle impérieux de généraliser l'examen périodique qui permet, grâce à la biopsie des lésions suspectes, le diagnostic et le traitement précoce du cancer; l'on accroît ainsi les chances de guérison et minimise le danger de métastase.

Les dentistes ont été à l'avant-garde des professions de la santé dans le domaine de l'éducation et de la prévention. A preuve le création de départements de dentisterie préventive et sociale dans les facultés dentaires, les efforts portés sur les mesures préventives individuelles, comme l'application topique de fluorure, et de masse telle la fluoration de l'eau, l'enseignement de l'hygiène dentaire dans les cabinets privés et de la part d'organismes sanitaires publics.

Cette action a généré des résultats maintenant palpables; aussi doit-elle se perpétuer et même s'accentuer en vue du maintien et de l'amélioration de la santé bucco-dentaire et partant générale de la collectivité.

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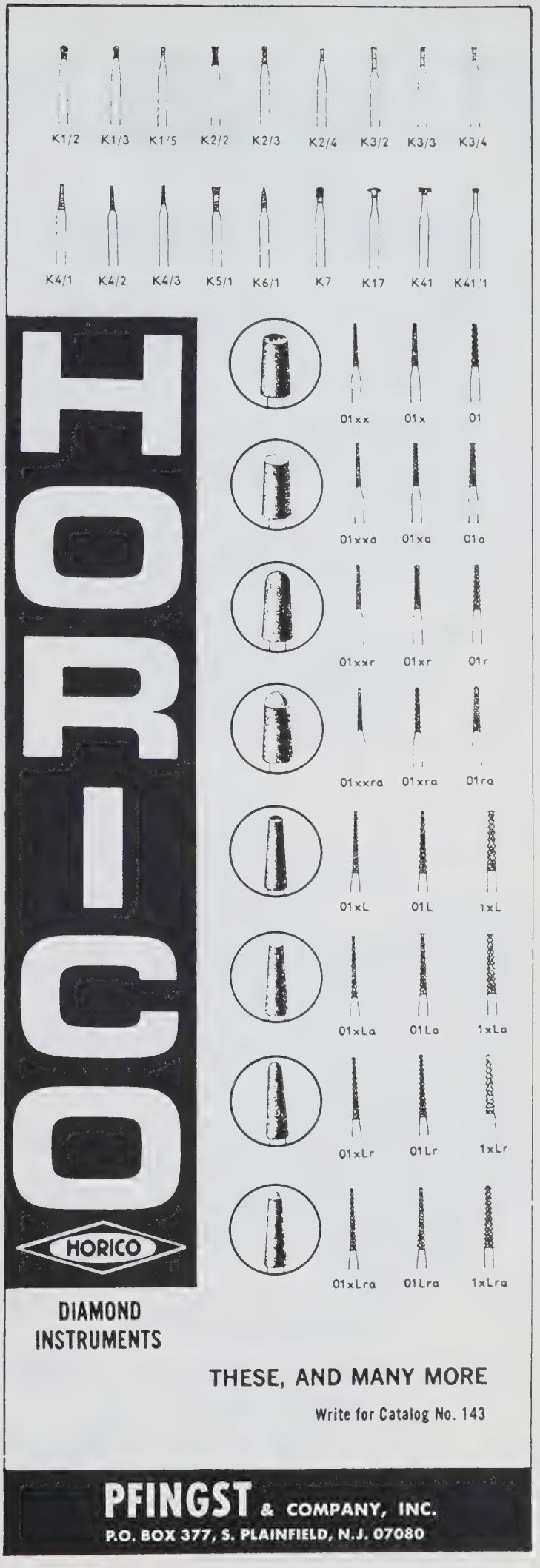

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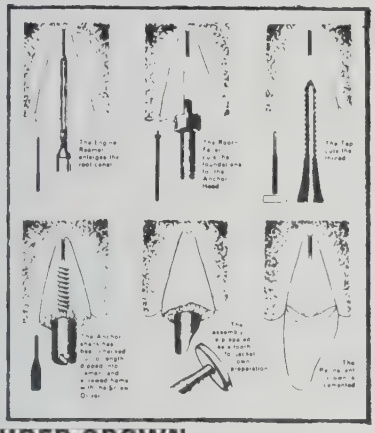

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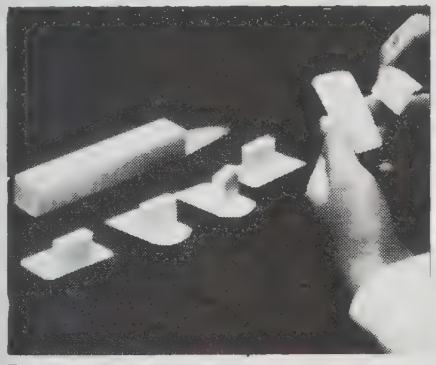

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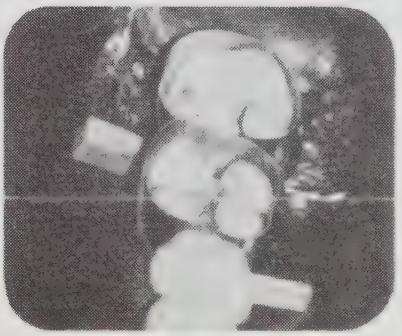

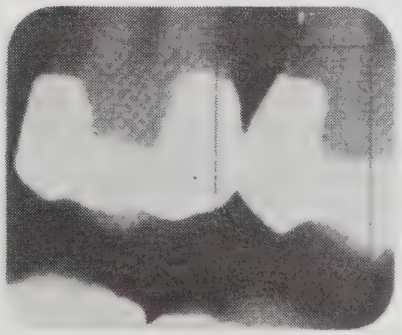

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Canadian Dental Association/Association Dentaire Canadienne

1978 Annual Meeting and Convention, Winnipeg

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Practical considerations in the preparations of overdenture abutments
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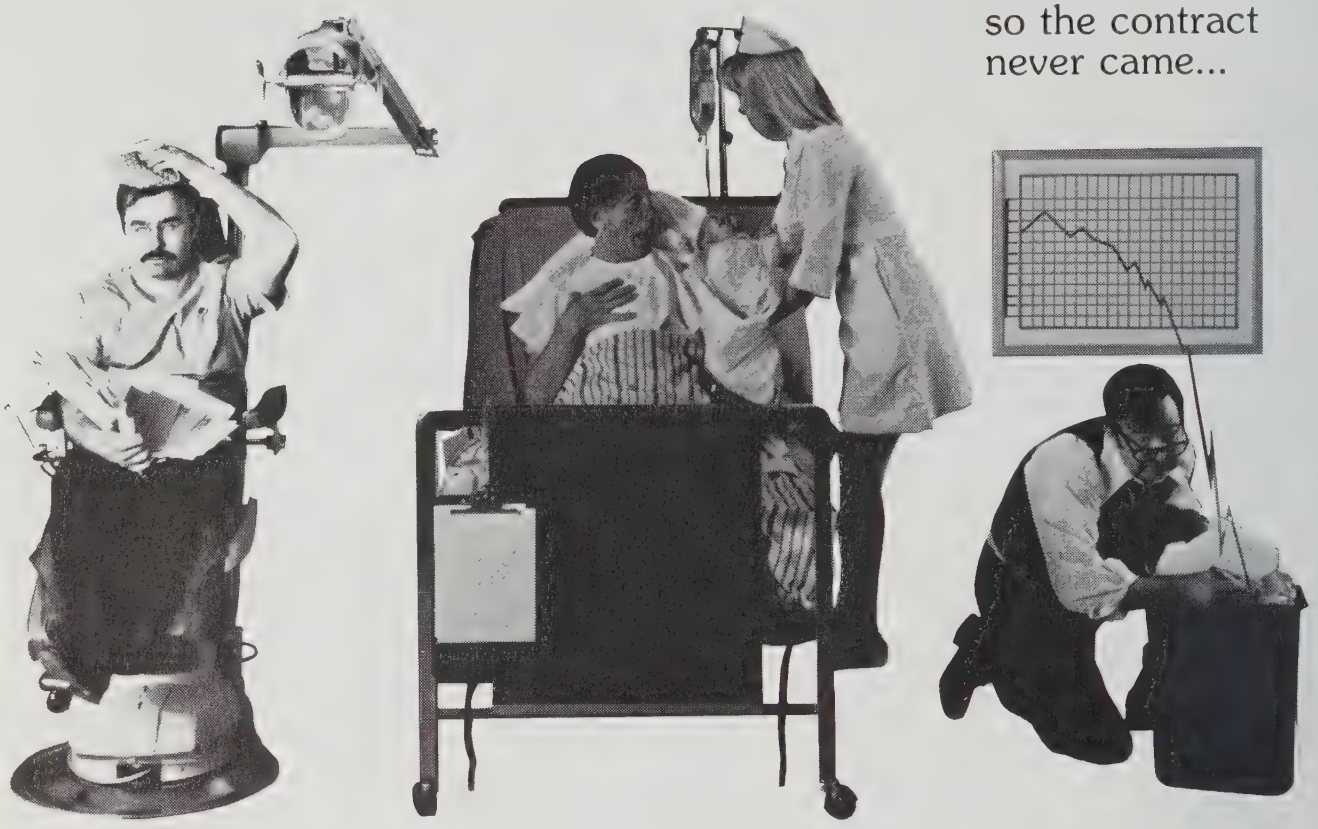

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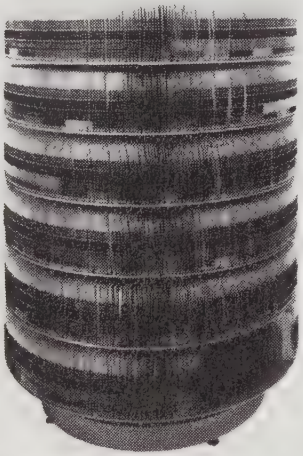

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CDA APPOINTS FULL-TIME ACCREDITATION OFFICER

Dr. J.V.P. Chatwin

Dr. J. V. P. Chatwin of Ottawa has been appointed the first full-time accreditation officer of the Canadian Dental Association. His appointment became effective early in August, 1978.

In his capacity as accreditation officer, Dr. Chatwin is responsible for all evaluations of dental undergraduate and dental specialty programs, dental hygienists and dental assistants programs for the CDA. He will engage independent experts to evaluate various programs and ensure they meet the standards set by the CDA and various provincial licensing bodies.

Dr. Chatwin is working at CDA headquarters in Ottawa.

Prior to joining the CDA, he served as director of Dental Health Science at Algonquin College in Ottawa, a post he held since 1974. In that position, he was responsible for the organization and administration of a dental hygiene program within the college system.

A graduate of the University of Alberta in Edmonton, he began his career in dentistry in 1951 as a dental officer in the Canadian Armed Forces at Camp Borden, Ontario. With the exception of a three-year period between 1954-57, when he was in private practice, Dr. Chatwin continued to serve with the Armed Forces until 1974.

His final posting was as Commanding Officer of No. 1 Dental Unit, Ottawa, where he was responsible for the provision of dental services for service members in the Ottawa area. As well, he was chief of the dental department of the National Defence Medical Centre.

In addition to his affiliation with the CDA and the Ontario Dental Association, Dr. Chatwin is a member of the Ottawa Dental Society, a past president of the Canadian Society of Public Health Dentists and a fellow of the International College of Dentists and the Royal College of Dentists of Canada.

CANADIANS PARTICIPATE IN WORLD DENTAL CONGRESS

Three Canadian dentists presented papers to the 66th annual World Dental Congress of the Fédération Dentaire Internationale held in Madrid, Spain, September 25-29.

Dr. A. M. Hunt of the Faculty of Dentistry, University of Toronto, outlined findings of a study on the state of dental disease among children and adults in Ontario as part of a discussion of the FDI's Public Dental Services Commission which works in association with the World Health Organization. The Commission studied the topic: "International Collaboration For Better Dental Health" and Dr. Hunt presented the Canadian viewpoint.

Dr. C. W. Herten-Greaven of St. Mary's Hospital, Montreal, discussed "Tooth Transplants: An Old Idea Still Going Strong." His paper was presented during a discussion of the FDI's working group on dental history.

A Victoria dentist, Dr. F. McCombie, addressed the FDI's Commission on Classification and Statistics for Oral Conditions with a discussion of "Cost Effectiveness Considerations in Planning a Preventative Dental Program for British Columbia."

Themes at this year's Congress were: Dental Health in the Aged; Psychosomatic Factors of Importance in Dental Practice; and Assessment of New Equipment, Materials, Methods for the General Practitioner.

As well as FDI sessions, there were a number of meetings of affiliated organizations, including the International Association of Oral Surgeons which discussed Oral Cancer, and the World Health Organization which looked at the topic, Dentistry in the Year 2000.

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MIT study reports cocoa powder may inhibit tooth decay

A Massachusetts Institute of Technology research team has reported that a key step in the development of tooth decay is blocked by a substance in cocoa. The experiment involved measuring the production, by oral bacteria, of compounds which form dental plaque. Cocoa powder could virtually stop production of the compounds.

The finding in this study, which was supported by a grant from the Chocolate Manufacturers Association of the USA, is that cocoa powder inhibits the synthesis of dextrans which cause dental plaque formation.

Graduate student Vincent J. Paolino, who worked under the direction of Dr. Sanford A. Miller, Director of the Training Program in Oral Science in the Department of Nutrition and Food Science at the Massachusetts Institute of Technology, reported in a paper presented to the International Association for Dental Research that there is a heat-stable water-soluble chemical component of cocoa which shows an inhibitory effect on total dextran synthesis of *Streptococcus mutans,* the organism that plays a primary role in the development of tooth decay. According to the MIT study, there is a dose-related decrease in dextransucrase activity with increased cocoa concentrations.

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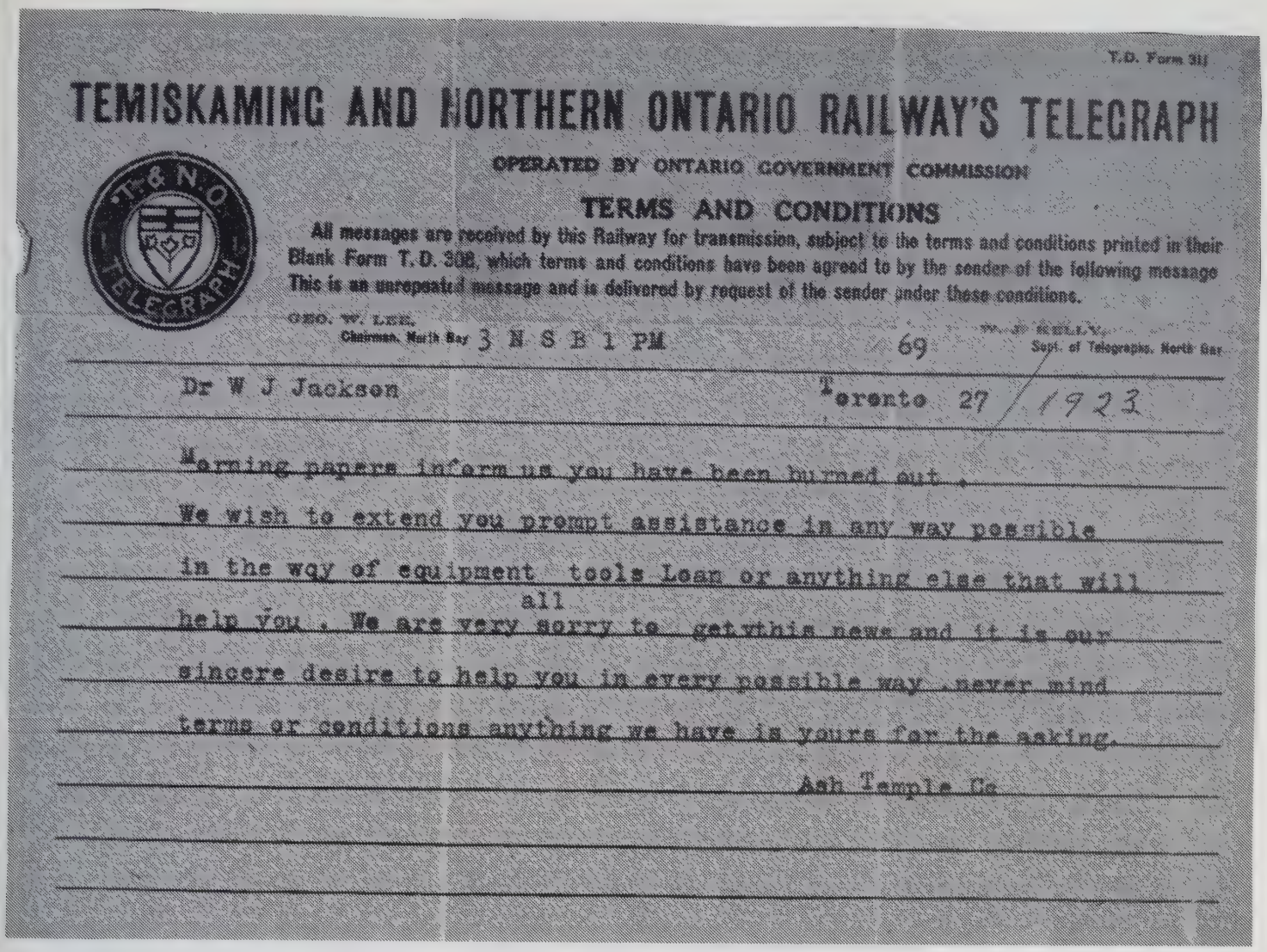
Speakers invited for 1979 FDI Congress

During the Scientific Program of the 67th Annual World Dental Congress of the Fédération Dentaire Internationale, to be held October 21-26, 1979, in Paris, France, a certain number of Free Communications will be presented.

Anyone wishing to take part in this aspect of the program should write immediately to the following address for the relevant forms: Professor R. Frank, Faculté de Chirurgie Dentaire, 4 Rue Kirschleger, 67000 Strasbourg. Application deadline is November 30, 1978.

Two more tenants at CDA Headquarters

Two more tenants are making 1815 Alta Vista Drive, CDA Headquarters, their business address. The second floor south east end office is occupied by the Executive Director of the Canadian Pharmaceutical Association and his secretary. And Alcron Investments Limited have taken 3,000 square feet on the south west side of the second floor. This will leave only 3,000 square feet to rent from the original 12,000.



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GEO. W. LEE, Chairman, North Bay

3 N S B 1 PM 69

M. J. KELLY, Supt. of Telegraphs, North Bay

Dr W J Jackson Toronto 27 1923

Morning papers inform us you have been burned out .
We wish to extend you prompt assistance in any way possible
in the way of equipment tools Loan or anything else that will
help you . We are very sorry to all get this news and it is our
sincere desire to help you in every possible way .never mind
terms or conditions anything we have is yours for the asking.

Ash Temple Co

Our offer is still good.

Yes, Dr. Jackson, our offer in 1977 is just as good as it was in 1923.

When Ash Temple started business, before the turn of the century, we had a simple business philosophy – "to serve every need of the dental profession". Over the past half century, we have all seen tremendous changes in the dental profession, but that philosophy still stands and, we think, is responsible for our success as a major dental supply company.

Servicing the needs of dentists is an ongoing challenge at Ash Temple. Developments in medical science have demanded that the most up-to-date equipment, facilities and services be available immediately. It is in this climate of changing technology and technique that we continue to be your full service dental supply company with offices and warehouses across Canada.

At Ash Temple, we want to serve dentists, and our business philosophy, while over 80 years old – is as fresh as next year's graduates.

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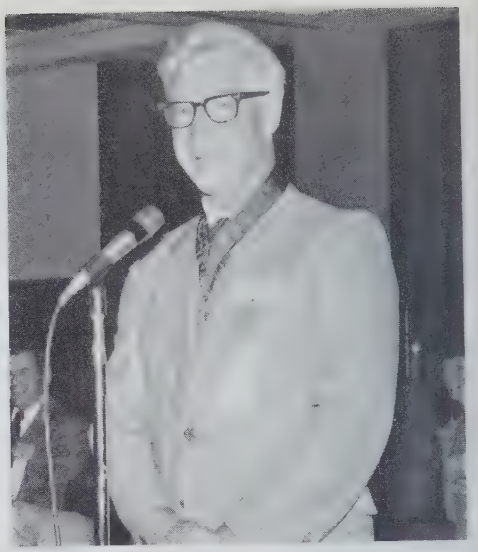
Ash Temple LIMITED

Installation officer Dr. M. Charendoff on the left secures the presidential chain of office as Dr. R.L. Moran assumes the CDA presidency at the installation luncheon. Chairman of the board, Dr. N.A. Mancini centres the chain.



Dr. K.O. Wylie, president of the Canadian Medical Association, pictured above, and Dr. John W. Tiede, 2nd vice-president of the American Dental Association, pictured below, were on hand at the opening ceremonies to convey the greetings of their respective associations.

WINNIPEG
A Super Convention City

Close to 2,500 dentists, specialists, auxiliaries, guests, wives and exhibitors can all attest to the great success of the 1978 CDA Convention held in Winnipeg. The scientific and social program organized by the Manitoba Dental Association made this 77th National Convention one of the best ever.

Representatives of the specialty groups met with CDA executive and staff to seek a closer liaison and assist with mutual interests. They are, back row from left to right: Dr. A. Ruprecht, secretary-treasurer of Canadian Academy of Oral Radiology; Dr. R.W. Simpson, president-elect, Canadian Association of Pedodontics; Dr. F. Pulver, secretary-treasurer, Canadian Academy of Pedodontics; Dr. D. Kozloff, president, Canadian Academy of Pedodontics; Dr. F. Muroff, president-elect, Canadian Association of Periodontology; Mr. L.A. Stevenson, executive director, Canadian Dental Association; Dr. J.J. Schachter, secretary-treasurer, Canadian Association of Orthodontists; Dr. B.B. Harsanyi, president, Canadian Academy of Oral Pathology; and Dr. R.W. Faith, president-elect, Canadian Academy of Orthodontists. Seated from left to right: Dr. R.L. Ellis, secretary-treasurer, Canadian Society of Public Health Dentists; Dr. J. Gryfe, president-elect, Canadian Association of Oral & Maxillofacial Surgeons; Dr. G. Maranda, president, Canadian Association of Oral & Maxillofacial Surgeons; Mrs. Helene Deschamps, council secretary, Canadian Dental Association; and Dr. D.L. Rife, president, Canadian Dental Association.

CDA 1979
Convention
Quebec City
September 9-12

Mr. Terence Neal Spearman, department of oral biology, University of Manitoba, is the 1978 winner of the Canadian Dental Research Foundation Award. He is seen here accepting the plaque and cheque for $500 from CDA president Dr. D. L. Rife for his paper "Potassium Release from Submandibular Salivary Glands in Vitro." The presentation was made at the opening ceremonies of the CDA Convention, September 10, at the Winnipeg Convention Centre. The University of Manitoba also received an Institutional Award because the prize winning research was performed there. That award was accepted by Dr. Charles Dowse.

Mr. L. Balding, vice-president of the British Dental Association addressed delegates attending the opening ceremonies.

The newly-created Council on Student Affairs was well represented at the Board of Governors meeting September 9 and 10 in Winnipeg. Council chairman Richard Gilsig on the right, confers with board governor Gary Cousens.

Platform guests for the opening ceremonies were piped in by the Henderson Highlanders. Dr. B. Goldberg, president of the Manitoba Dental Association, and Mrs. Goldberg precede Dr. and Mrs. A. J. Shinoff.

CDA office manager Janet Langley mans the CDA booth as Manitoba convention chairman, Dr. Ralph Crawford, third from left, makes inquiries.

Some members of the CDA Board of Directors in session. From left to right: Drs. R. R. Schiewe and M. Charendoff of Ontario; Drs. R. L'Heureux, C. Covit and R. Dupont of Québec; Dr. R. D. Sexton of Newfoundland; Dr. C. Dexter of Nova Scotia at the microphone; Dr. D. E. Williams of New Brunswick and Dr. J. B. Murphy of Prince Edward Island.

A section of the busy exhibit hall at the Winnipeg Convention Centre where delegates were able to view the latest in dental equipment and supplies.

The front row VIP's at the opening ceremonies of the CDA convention are from left to right: Dr. N. A. Mancini, chairman of the board of governors, CDA; Winnipeg Mayor Robert Steen; Manitoba Minister of Health and Social Development L. Sherman; Dr. K. O. Wylie, president of the Canadian Medical Association; Dr. John W. Tiede, 2nd vice-president of the American Dental Association; Mr. L. Balding, vice-president of the British Dental Association; Dr. R. L. Moran, incoming president of CDA; Dr. T. Hechter, president of the Winnipeg Dental Association; Mr. Henry Thornton, Chairman of the board, Dentsply International; Dr. A. J. Shinoff, CDA governor for Manitoba; and Dr. B. Goldberg, president of the Manitoba Dental Association. Dr. D. L. Rife, president of CDA, was at the microphone when this photograph was taken.

HIGHLIGHTS: BOARD OF GOVERNORS' MEETING

Executive Council

The 1978-79 Canadian Dental Association Executive Council includes president Dr. R. L. Moran, Toronto; past president Dr. D. L. Rife, Toronto; president-elect Dr. C. Covit, Montreal; incumbents Dr. A. Shinoff, Winnipeg and Dr. G. E. Utas, Grande Prairie, and the three newly-elected members for two-year terms: Dr. R. Evans, Picton; Dr. W. Froese, Chilliwack and Dr. D. Williams, Moncton. Dr. M. Charendoff was the fourth member seeking a council seat. The vacancy created by the election of Dr. C. Covit to president-elect in mid-term will be filled by presidential appointment. Dr. Covit defeated Dr. C. Dexter of Halifax whose term on council expires this year.

The chairman of the board is Dr. N. A. Mancini of Hamilton and the management committee consists of Drs. Moran, Rife and Covit.

Other elective positions included Dr. G. Anthony of St. John's to the Council on Constitution and By-Laws in order to acquire an Atlantic representative, and Dr. J. H. Main of Toronto to the Council on Hospital Services as one member only from Ontario is eligible to serve on this council. Dr. R. Gray of Medicine Hat was nominated from the floor to the Council on Nominations.

Membership

Membership fees in the Canadian Dental Association will be increased effective January 1, 1980.

While not in unanimous agreement, the Board approved a membership fee of $125.00 yearly for active members. Associate Membership will be increased from $35.00 to $50.00, student membership fees from $5.00 to $10.00 but there will be no increase for corporate members at this time.

While it was agreed there would be no reduction in fees for salaried dentists or military personnel and no special category of membership the Executive Council referred the matter back to the membership committee for a position statement.

Certificates of Merit

President Dr. D. L. Rife presented certificates of merit for outstanding service to CDA to: Dr. John W. Neilson, Winnipeg, chairman of the CFDE Board of Trustees; Dr. W. H. Feasby, London, chairman of the Council on Education and Dr. R. G, Dickson, Drumheller, chairman of the Council on Health Care.

Taxation

Following a meeting this fall hosted by CDA with representatives from the medical, legal and accounting professions, a joint presentation will be made to the Department of Justice to obtain a tax exemption for continuing education expenses in addition to the tuition fees.

While the Department of Revenue earlier appeared sympathetic to the CDA's Taxation Committee views, the Departments of Justice and Finance strongly objected to any variation in the Interpretation Bulletin IT-357 on the grounds of possible abuse. To overcome the problem the committee with their advisors are preparing control guidelines for the dental profession to be incorporated with those from the legal, accounting and medical professions for a comprehensive submission to the Department of Justice requesting a change in the income tax act so that continuing education expenses can be deducted.

International Year of the Child

The World Health Organization has designated 1979 as International Year of the Child and to that end the theme of next year's CDA annual meeting will deal with children.

Student Affairs

Student membership in CDA is now nearly 75 per cent (74.39), an indication of the enthusiasm of the Council on Student Affairs and the success of the CDA "Welcome to the Profession Receptions" across the country.

As the governor is elected to serve for only one year, the Board of Governors has agreed that the student governor-elect will be invited to all future board meetings as an observer to gain the background experience necessary.

The CDA Council on Student Affairs has been invited to send a student representative observer to the National Dental Examining Board and in turn the Council has invited a representative from the NDEB to be present at the meetings of the Council on invitation.

CDA Headquarters

On January 1, 1979, the CDA computer operation will begin in Ottawa and be linked into Systems Dimensions Ltd. for more efficient management and better control of reporting requirements.

And to confirm the move from Toronto to Ottawa, the Canadian Dental Association bilingual sign L'Association Dentaire Canadienne has been manufactured and affixed to the front of the building at 1815 Alta Vista Drive.

CDA Board of Governors announces interim meeting

The Canadian Dental Association's Board of Governors will hold its interim meeting March 12 and 13, 1979, at the Chateau Laurier Hotel in Ottawa.

DR. ROD MORAN INSTALLED AS PRESIDENT OF CDA

The Director of Dentistry at the Ontario Crippled Children's Centre, Toronto, Dr. R. L. Moran, was installed as president of the Canadian Dental Association September 11, at the association's national convention in Winnipeg. He succeeds Dr. D. L. Rife of Toronto.

Dr. Moran is an associate in dentistry, University of Toronto, paedodontic graduate section; a clinical assistant at the Hospital for Sick Children and a paedodontic consultant at the North York General Hospital, Toronto.

Born in Port Arthur, Ontario, Dr. Moran received his DDS from the University of Toronto in 1961. Having served in the Royal Canadian Dental Corps from 1961 to 1965, he returned to graduate school, University of Toronto, to earn his diploma in paedodontics in 1967 and in the same year received his specialist certificate in paedodontics from the Royal College of Dental Surgeons of Ontario.

A fellow of the Royal College of Dentists of Canada, Dr. Moran has played an active role in dental associations, academies and societies. He is a long-time member of both the Canadian and Ontario Dental Associations, serving as president of the ODA in 1974 and an executive member of CDA since 1975. His other memberships include the American Association of Dentistry for the Handicapped, both the Canadian Academy and Ontario Society of Paedodontics, the Royal College of Dentists of Canada, the Canadian Society of Dentistry for Children and the Omicron Kappa Upsilon Honour Dental Society.

Dr. Moran was the founding chairman of the University of Toronto Student Health Organization, dental division, Alexandra Park Project. He is a member of: the medical advisory committee, Ontario Crippled Children's Centre; the professional advisory committee of the Ontario Society for Crippled Children; the task force on the Provision of Dental Care for Handicapped and Retarded Persons and the Ontario Government Task Force on Handicapped Children.

Dr. R. L. Moran

Dr. Moran has presented numerous papers on dentistry for children and dentistry for the disabled.

He and his wife Delores have three children — Roddy, David and Laura.

DR. CLYDE COVIT ELECTED CDA PRESIDENT-ELECT

Montreal dentist Dr. Clyde Covit was elected as president-elect of the Canadian Dental Association at the Board of Governor's meeting September 9 in Winnipeg. The other candidate was Dr. C. Dexter of Halifax.

The two-day board meeting was held prior to the annual convention of the Canadian Dental Association.

A native of Montreal, Dr. Covit graduated with a B.Sc from Sir George Williams University in 1964 and received his DDS from the University of Montreal in 1968.

Dr. Covit has been a governor of the Canadian Dental Association since 1976 and a member of the Executive Council since 1977.

He was chairman of the board of the Quebec Dental Surgeons Association in 1976 and 1977, president in 1975, a member of the Executive from 1973 to 1977 and a governor since 1973.

And his responsibilities do not end there. Since 1975 he has been chairman of the QDSA Insurance Committee which is concerned with prepaid dental plans; and since 1974 he has been a member of the negotiating committee with the Quebec Government on dental care services for children and social welfare recipients. In this connection, he was the keynote speaker to the American Dental Association for the Council on Dental Care Programs held September 26 and 27 in Chicago. His topic was "Are We Losing Control of Our Profession" or "The Effects of Dental Prepayment in Dental Offices."

In addition to membership in CDA and the QDSA, Dr. Covit holds memberships in the Order of Dentists of Quebec, the Ontario Dental Association, the Royal College of Dental Surgeons of Ontario, the Fédération Dentaire Internationale, the Pierre Fauchard Academy, the Mount Royal Dental Society — Alpha Omega Fraternity and the Société Dentaire de Montreal.

Dr. C. Covit

Dr. Covit and his wife Sharon have three children, Brandee, Hayley and Barrie.

CDA PRESIDENT URGES DENTISTS TO UNITE: SEEK DIALOGUE WITH GOVERNMENTS

Dr. Rod Moran of Toronto was installed as President of the Canadian Dental Association on September 11, during the CDA National Convention. The following is his address to delegates and special guests attending the installation luncheon.

I consider it a privilege and an honour to have the opportunity to serve the dentists of Canada as President of the Canadian Dental Association.

Never before has the need for unity among all dentists in Canada — all of us working toward common goals despite any individual differences — never has this need been more apparent or more urgent.

United, and speaking with one voice, the 10,000 men and women who make up the dental profession in this country can marshall reasonable and well-documented arguments against government intrusion into our profession.

Divided, we may all wind up on a payroll, with our self-respect as professionals and our control of professional standards lost in the process.

Before you get the wrong impression, this is not a rallying cry for all-out war against the various levels of government. This we don't need. We would rather seek dialogue.

What we *do* need is the full support of every member of the profession in Canada, so that when the time comes to argue some of the measures being proposed by government, we will do so with one strong, resounding voice.

During the past few years, I have seen many changes in our association. Since our new constitution was passed in 1975, which in essence changed the CDA into a federation of its corporate members, the provinces, we have been working to develop a united front for the dental profession in Canada. That feeling of unity is building, slowly but surely.

And at the same time, we are recognizing the rights and responsibilities of each of our corporate members. Most of our provincial licencing boards and associations have been under a constant buffeting, some rather severely, and have had to exert tremendous effort to keep up with the pressures placed upon them.

At the federal level, Ottawa has now entered the scene and decided to impose its will on *all* the professions. We have the Anti-Inflation Board, which has put our incomes under close scrutiny and has limited them. We have the Anti-Combines legislation which suggests that fee guides are illegal and that advertising must be permitted within the profession.

The vast majority of our members are against advertising, not just the associations, but each provincial regulatory body as well. The Government has taken the position that advertising would increase competition and that this would somehow reduce the cost of dental care to the public.

We certainly don't think so. All it would do is create an extra operating expense which would be passed on to the consumer.

And now we have the Federal Ministry of Health and Welfare which has developed a draft paper on guidelines for the practice of dentistry in Canada. Up to the moment, the dental profession has always set the standards for dental care in this country and I firmly believe that the profession should continue to set them. The standards proposed under the Ministry's draft would have a profound effect on the delivery systems of dental care, the types of auxiliaries and cost.

The dentists of Canada must recognize the implications that such guidelines will have upon the profession and be prepared to participate in all the debate surrounding them long before these guidelines become legislation.

I can also see our forms of accreditation being challenged, and this is something which must be taken very seriously or the day may come when accreditation will be taken over by an agency other than the dental profession.

We are the experts in delivering dental services in day-to-day contact with the public. And we as a profession — if we are to retain our integrity — must be prepared to insure that we are heard, as one strong, united voice, so that any changes that are made are ultimately in the best interests of the people of Canada.

That is why we need unity on the national front and on the provincial front.

This is an era of change, and some changes undoubtedly will come about.

But if we are to retain our respect as professionals, then we must work hard — and work together — to make sure that our side of the story is placed before the proper authorities and, if need be, before the public.

I can assure you that the CDA recognizes each of these challenges and is preparing to face them.

But that is not all your national association is doing for the profession.

Today, the CDA operates with a budget of one million dollars a year. Through CDSPI, it collects four million in insurance premiums and in the investment area is working with a fund of some 30 million dollars. The Executive Council used to meet twice a year, now it meets ten times a year.

During the past year, we have brought into effect, in co-operation with the corporate members, the most comprehensive insurance plans ever devised for a professional group. And, what is more important, we have bought the insurance plans fully under control of the profession, where they belong.

Continued on page 448

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We have extended the coverage and at the same time have lowered the premiums. A claims review committee has been established to ensure that the interests of the profession are being looked after.

Of course, in establishing any new plan as comprehensive as this one, you are going to run into problems. There have been snags, I admit, but these are being straightened out.

We have completed an intensive review of the retirement savings plans and we plan to introduce changes in 1979. The plan certainly needs upgrading and it is being given top priority at Executive Council.

We have established guidelines for performance of the fund which will provide the Executive Council with a method of monitoring its performance to see that our expectations are being maintained.

And again, when changes to the retirement plans are introduced, we will ensure that they are brought under the *absolute* control of the profession.

A tax committee has been established to try to ease the burden of taxation on dentists. One of their first priorities is to work on a joint submission with the medical profession, lawyers and chartered accountants to seek relief from the costs of continuing education.

If mandatory continuing education is to become a condition of retaining one's licence — and that day may not be far off — then the CDA must establish a Canada-wide monitoring mechanism so that both dentists and the regulatory bodies know which courses are acceptable and which courses are not.

We realize that in the past we have not been communicating with our members as much as we should and this is another area the association has been working on. As members will realize, we now have a new quarterly publication, the Communique, which is designed to keep dentists across Canada informed of what the association is doing on their behalf.

We have also had an intensive review of the CDA Journal and you will soon be seeing a fresher, more impressive format. The Journal will continue to keep dentists up-to-date on new techniques concerning our profession.

Our total objective is to keep up a flow of fresh, up-to-date information to all dentists across the country so that they will be informed and can become committed as we face the challenges of the future.

In a recent issue of The Financial Post, I noticed some rather amazing figures. In 1977, prepaid dental insurance in Canada amounted to 126.8 million dollars. Of that, dentists were paid some $98 million, which left almost 28 million as administrative costs and profit for the insurance companies. If we, as dentists, are going to depend on prepaid dental insurance for almost 100 million of our income, then we had better monitor the system closely and constantly. This we are doing and will continue to do.

As well, we are printing a consumers' guide to prepaid dental insurance, in both languages, which is part of our program of updating *all* CDA brochures and pamphlets.

Not too many years down the line, I can see the time coming when membership to CDA will be purely voluntary. In other words, we have to work hard today to earn the respect of the profession.

We are staking our future on our performance.

That is a summary of some of our activities, but it is by no means a complete list. These are serious days for our profession. The issues I described earlier will be with us for several years to come.

I have the greatest faith in your Executive Council. They are the finest group of men I have ever worked with. And we are especially fortunate to have on the council seven past presidents of provincial associations, including two from Ontario, two from the Maritimes, one from British Columbia, one from Quebec, and one from Alberta.

Together we can meet the challenges that are being presented to us. But I must stress that word "together".

The CDA can't do it alone. The Provincial Associations can't do it alone. We need the support of each and every one of you. *Unity is the key word*. One strong voice representing the whole of the profession on matters of national concern to dentists.

I accept the challenge I have been given as your President and I assure you I will do my very best to serve you.

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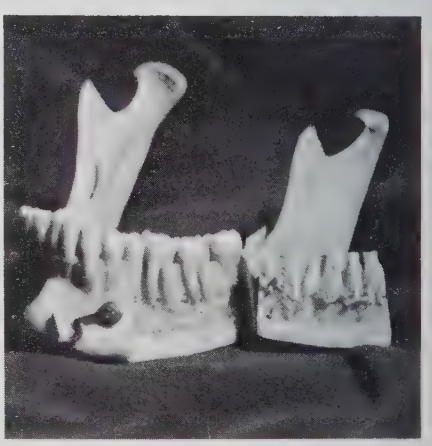

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CDA awards honorary membership

CDA president Dr. D.L. Rife, right, presents an honorary membership to Dr. H.R. MacLean of Edmonton.

A former dean of the faculty of dentistry, University of Alberta, a past-president of the Canadian Dental Association and a distinguished national and international dental authority Dr. H. R. MacLean of Edmonton was awarded an honorary membership in the Canadian Dental Association.

The presentation was made September 11 by CDA President Dr. D. L. Rife at the association's annual convention in Winnipeg.

Dr. MacLean was on staff at the University of Alberta from 1935 to 1970. He was dean, faculty of dentistry, from 1958 to 1970 and, prior to that, professor of restorative dentistry and head of the section of oral diagnosis. He was also on staff at the University of Alberta Hospital from 1939 to 1970.

Born in Finch, Ontario, he received his undergraduate training at the University of Saskatchewan, his DDS from the University of Alberta in 1928, and conducted a private practice in Edmonton until 1958.

Dr. MacLean is a fellow of the American College of Dentists, the International College of Dentists and a member of the Royal College of Dentists of Canada.

A member of the CDA organization committee on the National Dental Examining Board, Dr. MacLean served 15 years on that Board, one term as president in 1966. Similarly he was a member of the CDA organization committee on dental research for the National Research Council and subsequently worked eight years on the research committee for NRC.

In his long association with CDA, Dr. MacLean also served as chairman of the council of auxiliary services, as governor for Alberta, on the executive council, board of directors, as president from 1969 to 1970 and more recently as chairman of the council on constitution and by-laws.

On the international scene he has been a member, consultant and many times Canadian delegate to the Fédération Dentaire Internationale attending meetings in Bulgaria, Mexico, Australia and England. He has conducted surveys in the Caribbean, Indonesia, Papua–New Guinea and worked in Brazil.

Dr. MacLean has been honoured with life membership in one Canadian and two American Academies, in the Alberta Dental Association where he served as president for many years, and just last year he was honoured with a Doctor of Laws (Honoris Causa) from the University of Alberta.

In addition, Dr. MacLean has richly contributed to the development of dentistry through numerous papers, articles, clinics and lectures.

An athlete throughout his life, Dr. MacLean is particularly noted for his mountain climbing; two lakes in the Rockies, the Small Hector Lake and the Great Hector Lake, are named after him.

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Participating student clinicians and program sponsors gathered for this photograph prior to the Canadian Dental Association's opening ceremonies on Sunday evening. Seated, left to right, are Sylvie Morin, Université Laval; Gloria McNeill, University of Manitoba; Mr. Henry M. Thornton, Chairman and Chief Executive of Dentsply International; Dr. Donald L. Rife, President of the Canadian Dental Association; Donna Marie Gregorash, University of Western Ontario; and Wayne A. Chou, University of British Columbia. Standing, left to right, are Don B. Stephenson, Dalhousie University; Dean Kolbinson, University of Saskatchewan; Edward Grodecki, University of Toronto; Paul W. S. Bai, McGill University; J. Trevor Hay, University of Alberta; and Pierre MacKay, Université de Montréal.

CANADIAN STUDENT TABLE CLINIC PROGRAM

The eighth Canadian Student Table Clinic Program was held in conjunction with the 77th Annual Meeting and National Convention of the Canadian Dental Association September 10-13, 1978, in Winnipeg, Manitoba. The Program was again sponsored by Dentsply Canada, Ltd., through a special grant made to the Canadian Fund for Dental Education.

This year's Program for Canadian students marked the eighth consecutive year that the Council on Education of the Canadian Dental Association has conducted the clinics and all ten Canadian dental schools were represented.

Students received an expense paid trip to Winnipeg to present their table clinics after placing first in their school's Spring Table Clinic Program. In those schools without such a program, the Dean of the dental school was invited to select an outstanding student clinician to participate in the annual event.

Under the definition established by the Council on Education, a table clinic is a table top demonstration of a technique or procedure concerned with some phase of research, diagnosis or treatment related to the profession of dentistry.

Students participating, their schools and clinic titles were: Paul S. W. Bai, McGill University — "Finishing and polishing of amalgam restorations;" Wayne A. Chou, University of British Columbia — "Systemic fluoride;" Donna Marie Gregorash, University of Western Ontario — "Periapical cemental dysplasia;" Edward Grodecki, University of Toronto — "Mandibular dysfunction;" J. Trevor Hay, University of Alberta — "Three dimensional photography in dentistry;" Dean Kolbinson, University of Saskatchewan — "Dentify — New frontiers in personal identification;" Pierre MacKay, Université de Montréal — "Survey on the utilization of the rubber dam and percentage of inlays and direct golds done by general practitioners of the Province of Quebec;" Gloria McNeill, University of Manitoba — "Orthodontics: The long face syndrome;" Sylvie Morin, Université Laval — "Technique de condensation verticale à la gutta percha;" and Don B. Stephenson, Dalhousie University — "Tooth mobility: What does it mean?"

A reception and dinner honoring participating student clinicians was hosted on Sunday evening, September 10, by Mr. Henry M. Thornton, Chairman of the Board and Chief Executive Officer of Dentsply International, representing the sponsors. The dinner was held at the downtown Holiday Inn and was attended by approximately fifty persons including student clinicians, Deans, faculty advisors of Canadian dental schools and special guests representing the dental profession and dental education.

Invited guests included Dr. and Mrs. Donald L. Rife, President of the Canadian Dental Association; Dr. Rod L. Moran, President-elect of the Canadian Dental Association; Dr. and Mrs. John W. Tiede, Second Vice-President of the American Dental Association; Dr. and Mrs. John W. Neilson, Chairman of the Canadian Fund for Dental Education; D. K. O. Wylie, President of the Canadian Medical Association; and Dr. and Mrs. Michael J. Cripton, Immediate Past President of the Canadian Dental Association.

The student clinicians were recognized during the official opening ceremonies of the Canadian Dental Association held on Sunday evening at the Winnipeg Convention Centre. On Tuesday, September 12 the students presented their clinics in two sessions at the Convention Centre for the benefit of those attending the Annual Meeting and National Convention.

The Mayor of Winnipeg, Robert Steen, on the right, presents CDA president Dr. D. L. Rife with an honorary citizenship of the city at the opening ceremonies of the CDA convention.

Canadian Association of Orthodontists

The Canadian Association of Orthodontists has announced its executive for the 1978-79 term of office. Members are: Dr. Robert Faith of Montreal, president; Dr. Michael Cripton of Moncton, president-elect; Dr. Rowland Haryett of Edmonton, vice-president; and Dr. Joseph Schachter of Saskatoon, secretary/treasurer.

Canadian Academy of Paedodontics

At the annual meeting of the Canadian Academy of Paedodontics held in Winnipeg on September 11, 1978, the following executive was elected: Dr. W. Simpson of Edmonton, president; Dr. I. Bennett of Halifax, vice-president; and Dr. F. Pulver of Toronto, secretary / treasurer. Dr. D. Kozloff of Montreal is past president.

CDA Retirement Savings Plan

This month's figures for the various funds and total market value of the Canadian Dental Association's Retirement Savings Plan were not available at press time.

These figures will be published in the next issue of the Journal.

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Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1979, Quebec City, September 9-12

Canadian Meetings

Calgary and District Dental Society, Banff Seminar, March 2-4, 1979. Three one-half day seminars at the height of the spring skiing season. Contact: Dr. Richard Odland, President, Calgary and District Dental Society, 615, 906-8 Avenue S.W., Calgary, Alberta T2P 1H9.

Third Canadian Congress of Dentistry for Children, Vancouver, April 6-8, 1979. Contact: Dr. G. M. Jinks, Suite 301, 1701 West Broadway, Vancouver, British Columbia V6J 1Y3.

Ontario Dental Association, 112th Spring Meeting, Sheraton Centre, Toronto, May 13-16, 1979. Contact: Mrs. W. C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Les Journées Dentaires du Québec, Queen Elizabeth Hotel, Montreal, May 27-31, 1979. Contact: Dr. Morton R. Lang, 5253 Decarie Blvd., Montreal, Quebec H3W 3C3. Telephone: (514) 481-0397.

Western Canada Dental Society Convention, Hotel Saskatchewan, Regina, June 7-9, 1979. Contact: Dr. T. E. Donavon, 205 McCallum Hill Building, Regina, Saskatchewan S4P 2G6.

7th International Symposium on Dental Hygiene, Vancouver, British Columbia, July 25-28, 1979. Theme: "Life long learning". Dental hygienists interested in participating in the program are asked to submit a summary of a 15 minute presentation relating to the theme for consideration by the Organizing Committee. Deadline for receipt of summaries is December 1, 1978. Submissions should be approximately 200 words in length and should be sent to: Joan S. Voris, General Program Chairman, 7th International Symposium on Dental Hygiene, 1125 West 8 Avenue, Vancouver, British Columbia V6H 3N4.

Canadian Association of Orthodontists, 31st Annual Meeting and Convention, Hotel Frontenac, Quebec City, September 8-9, 1979. Contact: Dr. R. Faith, 605–1538 Sherbrooke Street West, Montreal, Quebec, or Dr. J. J. Schachter, Box 952, Saskatoon, Saskatchewan.

International Meetings

International Congress on Hospital Dentistry, New York City, November 29–December 3, 1978. Contact: R. P. Hylton Jr., School of Dentistry, University of Minnesota Health Sciences Unit A, Suite 7174, Minneapolis 55455.

Bermuda Dental Association, Mid-Winter Meeting, Southampton Princess Hotel, Bermuda, January 20-22, 1979. Contact: The Secretary, Bermuda Dental Association, P.O. Box 785, Hamilton, Bermuda. Telephone: 809.29.27676.

Virgin Islands Dental Association Meeting, St. Thomas Sheraton Hotel and Marina, Feburary 29–March 3, 1979. Contact: Virgin Islands Dental Association, c/o Travel Services, Inc., P.O. Box 1691, Charlotte Amalie, V.I. 00801.

International Conference on Oral Implantology, Jerusalem, Israel, April 1-5, 1979. Contact: Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9.

Asian Pacific Dental Federation, 9th Dental Congress, Merlin Hotel, Kuala Lumpur, Malaysia, April 23-27, 1979. Contact: Dr. Lim Chee Shin, P.O. Box 234, Petaling Jaya Selangor, Malaysia.

American Dental Society of Europe, 85th Meeting, St. Moritz, June 25-29, 1979. Contact: Brian J. Parkins, Society Secretary, 57 Portland Place, London W1N 3AH, England.

Second Asian Pacific Congress in Anxiety and Pain Control in Dentistry, Honolulu, Hawaii, July 2-5, 1979. Contact: Australian Society for the Advancement of Anaesthesia and Sedation in Dentistry, Suite 904, Hooker House, 175 Pitt Street, Sydney, New South Wales 2000.

Society for the Advancement of Anaesthesia in Dentistry, Second International Congress on Modern Pain Control (Sedation, Anaesthesia and Analgesia in Dentistry), Royal Lancaster Hotel, London, England, July 13-16, 1979. Contact: Secretary, SAAD '79, 53 Wimpole Street, London W1M 7DF, England.

7th International Symposium on Dental Hygiene, Vancouver, British Columbia, July 25-28, 1979. For details see listing under "Canadian Meetings".

Fédération Dentaire Internationale, 67th Annual World Dental Congress, Paris, France, October 20-26, 1979. Contact: FDI, 64 Wimpole Street, London W1M 8AL, U.K.

LE PROGRAMME DU TEST D'APTITUDE DENTAIRE DÉCRIT LORS DU CONGRÈS

Lors du 10ème Congrès biennal de l'Association des facultés dentaires du Canada tenu en juin, le comité du Test d'aptitude dentaire a organisé un symposium d'une après-midi, dont les participants étaient les suivants: Dr. W. R. Teteruck de l'University of Western Ontario, président du comité TAD; Dr M. A. Boyd de l'Université de Colombie-Britannique; Dr G. W. Thompson, préalablement à l'Université de Toronto, actuellement doyen de la faculté dentaire de l'Université d'Alberta; Dr E. R. Ambrose, doyen de la faculté de médecine dentaire de l'Université de la Saskatchewan; et Dr J. W. Graham de l'American Dental Association.

Le Dr Marcia Boyd a annoncé aux délégués du congrès la mise en train à trois universités d'une étude destinée à déterminer l'efficacité d'un questionnaire sur la personnalité, afin d'identifier les traits de caractère risquant d'être indésirables chez un dentiste.

Le Dr Walter Teteruck a précisé que l'objectif du projet était d'identifier les aspects du caractère des étudiants en vue de déterminer si ceux-ci coincidaient avec les résultats obtenus par les tests de personnalité effectués préalablement, lors de l'admission à l'école dentaire. Si les résultats du premier test se comparient favorablement avec les évaluations récentes, a-t-il expliqué, les tests de personnalité pourraient être considérés à titre d'outil valable pour sélectionner les candidats aux programmes dentaires.

Le Dr Boyd a signalé que bien que "chaque comité d'admission aux écoles dentaires du Canada soit désireux de trouver une méthode fiable et valable de choisir les meilleurs candidats pour son programme universitaire, il n'y a pas de norme qui s'applique au choix des étudiants et les notes qu'ils obtiennent avant leurs études dentaires font considérablement pencher la balance lors de la sélection."

Le Dr Boyd a ajouté que les meilleurs élèves ne deviennent pas nécessairement les meilleurs dentistes. Elle a déclaré que si l'on trouve que le test de personnalité est un outil valable de sélection, il pourrait aider les préposés à l'admission à choisir les étudiants selon leur compétence lorsqu'il s'agit de prendre en main des patients plutôt que leur capacité lorsqu'il s'agit de passer un examen de sciences ou de préparer un plombage.

Le test actuellement administré aux candidats de toutes les écoles dentaires canadiennes consiste en un questionnaire sur seize facteurs de la personnalité ou le test 16 FP. Il s'agit d'un compte rendu de l'ensemble de la personnalité, noté objectivement, évalué en regard de la normale, reposant sur 16 caractéristiques normales de la personnalité.

Les efforts préliminaires de validation ont abouti à l'identification de trois types de personnalité qui ne conviendraient pas vraiment à la profession dentaire, a dit le Dr Boyd.

Elle a décrit ces trois types de personnalité comme étant: 1) l'individu argumentateur, insultant, irréfléchi et exigeant, qui manque de jugement, de maturité et manifeste peu d'égards vis-à-vis de ses patients; 2) l'étudiant timide, qui manque de confiance, qui a besoin de direction, qui craint la discussion, qui fait preuve de peu de calme et de panique en cas d'urgence; et 3) l'étudiant tardif ou absent, qui ne demande jamais d'aide, distrait, met ses erreurs sur le dos des autres et souvent, produit un travail de mauvaise qulité qui doit être refait.

Le Dr Teteruck a ajouté que grâce au test de personnalité, il sera peut-être possible d'éliminer les candidats qui deviendront des cliniciens inaptes à cause des caractéristiques signalées ci-dessus ou autres.

Le test 16 FP fait partie de l'ensemble des tests d'aptitude dentaire depuis 1975. Les deux principales parties de ces tests d'aptitude sont théorie et aptitude manuelle. Le Dr Teteruck a expliqué que ce test avait été présenté dès 1966, à la suite d'une étude pilote effectuée par l'"Ontario College of Education" conjointement avec la faculté dentaire de l'Université de Toronto.

Actuellement, les dix facultés dentaires du Canada se servent jusqu'à un certain point du Test d'aptitude dentaire pour choisir leurs candidats, mais cette procédure est plutôt récente, a-t-il ajouté.

Il a divisé l'historique du programme du Test d'aptitude dentaire en trois sections: la période formative, de 1964 à 1968; les étapes d'élaboration de 1968 à 1974; et la période de reconstruction de 1974 à 1978.

Les conférences présentées lors du symposium du Test d'aptitude dentaire seront publiées dans le Journal de l'ADC au début de 1979.

Correction

L'article intitulé "Une approche au syndrome douleur-dysfonction", publié au numéro de septembre du Journal, contenait deux erreurs. Ces erreurs doivent être corrigées ainsi que suit:

Page 378, 3e paragraphe, 2e ligne: du, au lieu de dy.

Page 379, les 3e et 4e paragraphes se lisent ainsi:

Il est difficile d'imaginer une thérapie psychiatrique ou de placebo qui rendrait inutile sinon préjudiciable l'intervention au niveau des surfaces occlusales. Il est important de remarquer la fréquence des interférences dans le syndrome de l'A.T.M. et presque tous les auteurs en admettent la nocivité. Schwartz[1], méme s'il ne leur accorde qu'une importance contributoire l'admet de façon simplicite et il semble essentiel d'éliminer ces interférences, peu importe que le rôle soit étiologique ou contributoire.

THE EFFECT OF SPIRAMYCIN ON PLAQUE ACCUMULATION AND GINGIVITIS

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I.D.F. Schofield, DDS, FRCD(C)
M.S. Haq, Phd
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A clinical investigation was undertaken to test the plaque control capabilities of the antibiotic, spiramycin. Sixty-three volunteers who agreed to refrain from any mechanical oral hygiene measures for an 11-week period were divided on a double blind basis into experimental and control groups. The members of the experimental group received 20 capsules of spiramycin, 500 mg, with instructions to take one capsule q.i.d. for five days. Individuals in the control group took 20 capsules of placebo in a similar manner. Plaque and gingival indices were recorded at weeks 0, 1, 3, 7 and 11. The only statistically significant difference between the two groups was observed in mandibular plaque at week 3.

It is a well known fact that dental plaque, if left undisturbed, can lead to caries and gingivitis,[1-4] and that the daily removal of this bacterial deposit by mechanical means will dramatically reduce or even prevent dental disease.[5,6] Unfortunately, most people seem unwilling to clean their teeth thoroughly each day, and thus the search for a safe and inexpensive means to provide protection is an ongoing project in institutions around the world. One such means is in the use of an antibiotic, and the purpose of this paper is to report the results of a clinical investigation testing the anti-plaque capabilities of spiramycin.

A review of the literature revealed that antibiotics have been tested widely as plaque control agents since it was reported that children taking small doses of penicillin for extended periods to prevent recurrence of rheumatic fever or for treatment of chronic respiratory disease developed 54 to 68 per cent fewer carious tooth surfaces than their untreated peers,[7,8] Vancomycin HC1,[9-16] Polymycin B,[10,11] tetracycline,[10] erythromycin,[17] penicillin and sulfadiazine,[18] kanamycin sulfate,[2,19] and niddamycin,[21,22] all have been tested, with significant reductions in plaque accumulation being reported in some studies and no improvement being observed in others.

The decision to use any antibiotic as a plaque control agent must be made with care. Not only can patients be plagued by nausea and diarrhoea but allergic reactions may develop and resistant organisms evolve. The ideal antibiotic, therefore, should not be toxic or allergenic, should have a narrow spectrum directed towards "plaque formers", and should be retained in the tissues in an active state for a prolonged period of time with a predilection for the oral cavity.[23]

Spiramycin (Rovamycine*) possesses some interesting properties that theoretically might make it useful as a plaque control agent. It is effective primarily against Gram-positive organisms (including *Streptococcus mutans* and *Actinomyces viscosus*, considered "plaque formers" and potential pathogens by Socransky[3]) and relatively inactive against other microorganisms. The antibiotic is retained for considerable time in bone, salivary glands and saliva in an active form.[24-28] Alveolar bone from rats administered spiramycin has demonstrated inhibition of bacterial growth for up to 26 days.[29,30] The drug has not been plagued by the induction of resistant bacterial strains or the development of significant side effects (with the possible exception of diarrhoea). It is excluded from use in the United States and is prescribed infrequently in Canada, which makes it attractive as a potential dental plaque control agent — at least in North America — because it would appear that substitutes can be found for life-threatening infections.

In an experiment conducted on hamsters, Keyes et al[31] tested nine antibacterial agents; spiramycin had the highest rating in the control of dentobacterial plaques, dental caries and periodontal lesions. This drug has been studied in a number of clinical trials in humans, and claims of "improved gingival and periodontal health with stoppage of bleeding and flow of pus" have been made.[32-36]

On the basis of this information, it was decided to conduct a clinical investigation to test the ability of spiramycin in preventing the build-up of dental plaque and the subsequent development of gingivitis.

Materials and methods

A call for volunteers who would agree to refrain from any type of mechanical oral hygiene measure for an 11-week period was made. Sixty-three subjects (23 females and 40 males), whose ages ranged from 13 to 60 years, responded. The volunteers constituted a very heterogeneous group from an educational and socio-economic point of view and they displayed all degrees of gingival and periodontal health and disease. The details of the study were fully explained to each participant (or parent of the four individuals under 18 years) before the consent form was signed.

At the first visit, one week prior to the commencement of the actual investigation, two intra-oral photographs (a facial view of the maxillary and mandibular incisor teeth, and a lingual view of the mandibular incisors) were taken of each

*Poulenc Ltd., Montreal

participant. During the course of the experiment all photographs were taken using the same lot of 35 mm Kodachrome II film in a Minolta SR-T101 camera, with an Auto Bellows Rokkor and 100 mm F4 short mount lens equipped with a Braun F290 flash attachment. Unstained plaque and gingival indices (PI and GI) were then recorded by modifying the systems of Ramfjord[37] and Loe.[38] Six pairs of teeth were graded (q.v.) — the maxillary and mandibular central incisors, first premolars and first molars. If a tooth was missing, the adjacent tooth to the distal was substituted. The indices were recorded on one member of each pair of teeth, while supragingival plaque samples were collected from the contralateral member of each pair for laboratory testing (the results of the laboratory portion of the investigation appear elsewhere[39]). The volunteer's teeth were scaled and he was encouraged to clean them as well as possible for the next week in an attempt to decrease the severity of any gingival inflammation present.

Seven days later the participant returned for the actual start of the experiment (i.e., week 0). As before, intra-oral photographs were taken and the PI and GI recorded. Plaque was harvested from the three maxillary and three mandibular teeth. The subject then was given, at random, a coded envelope containing 20 capsules of the drug (spiramycin 500 mg) or 20 capsules of the placebo on a double blind basis, with instructions to take one capsule four times per day for the next five days. This regimen was chosen because it represents the manufacturer's recommendations for mild to moderate infections. From this point until the experiment was terminated 11 weeks later, all subjects were required to refrain from any mechanical oral cleaning. The reasoning behind the selection of an 11-week period was to discover if a rather short course of treatment would have sufficient carryover effect to permit clinicians to prescribe the drug three or four times a year and still control plaque build-up and its sequelae.

The volunteers returned at weeks 1, 3, 7 and 11 for intra-oral photographs, plaque and gingival indices and plaque collection. At the end of the experiment, all participants received a thorough oral prophylaxis and were admitted to the dental clinic at the University of Western Ontario, Faculty of Dentistry for complete care.

Two investigators (RHJ and IDFS) performed all the clinical scoring and collection of plaque. In an attempt to establish intra- and inter-examiner reliability during the several months needed to complete the investigation, a pre-experiment "mock trial" was conducted on 25 volunteers over a four or five month period. Once the actual investigation began, standardization of the grading system was maintained by performing periodical checks between the two clinical examiners.

For each of the six test teeth, the amounts of plaque and gingivitis were evaluated on the facial, mesial (later to be doubled to take into account the distal), and palatal/lingual according to the following criteria:

Plaque index

1 — No plaque visible.
2 — Moderate accumulation of soft deposits on the gingival margin and/or adjacent tooth surface.
3 — Abundance of soft matter on the gingival margin and adjacent tooth surface.

Gingival index

0 — Normal gingiva.
1 — Mild inflammation, slight change in colour, slight edema, no bleeding on probing.
2 — Moderate inflammation, cyanosis, edema, and glazing, bleeding on probing.
3 — Severe imflammation, marked cyanosis and edema, ulceration, tendency to spontaneous bleeding.

Because plaque flora varies from site to site within the same mouth,[4,40] the maxillary indices were considered separately from the mandibular. To calculate a PI or GI for individual teeth, the scores for the buccal, mesial (doubled) and palatal/lingual were added and divided by four (4). To calculate a maxillary or mandibular PI or GI for each volunteer the three tooth scores in that arch were added together and divided by three (3). The number of control and experimental subjects with average maxillary PI "under 1.5", "1.5 to 2.5", and "over 2.5" were then placed in the appropriate category as seen in Table 1. This was repeated for the mandibular PI (table 2). In the case of the maxillary and mandibular GI, the number of volunteers were grouped in categories "under 0.5", "0.5 to 1.5", "1.5 to 2.5", and "over 2.5" (Tables 3 and 4). To determine the effect of spiramycin on the clinical indices, the data were analyzed using the chi-square statistic based on the formula of Rao.[41] The programs were written in Fortran and all computations were performed on a Control Data CYBER 73 computer at The University of Western Ontario.

Results

Of the 63 volunteers who began the experiment, complete data were available for 56, 27 of whom were on spiramycin and 29 of whom took the placebo. Although the participants were requested to inform the investigators immediately should an untoward reaction to the capsules develop, no-one reported a problem during the first week. However, when they returned, two unfavourable side effects were recorded in the experimental group. A young adult female developed a vesicular reaction on her hands but continued to take the spiramycin for the full five days. When she returned on day seven (7) the vesicles had almost disappeared and no treatment was instituted. A middle-aged male discontinued his capsules, after having taken 15 of the required 20, because of diarrhoea and a burning sensation of the rectum. Five people (three controls and two experimentals) complained of somewhat loose stools but all completed the investigation. Two individuals in the control group reported that their teeth had become sensitive to sweets; this possibly was due to the scaling and prophylaxis in areas of

gingival recession rather than the ingestion of capsules of placebo. A woman on spiramycin suspected she had been given the active ingredient because a chronic "gum boil" healed during the five days of drug administration. Finally, one man claimed that the medication made him "feel so good" that he gave one half of his capsules to his wife — he was on the control and was excluded from further investigation.

The weekly variation of chi-square comparing the effects of spiramycin and placebo on the plaque and gingival indices can be seen in Tables 1 to 4. The data demonstrate that in the case of PI (Tables 1 and 2) there was only one period — mandibular PI at week three — where spiramycin demonstrated a statistically significant benefit over the placebo. With respect to GI no significant difference was detected at any of the time periods studied (Tables 3 and 4).

Discussion

Although there was a significant difference between the experimental and control data for mandibular PI at week three, it probably is fair to conclude that under the conditions of the present clinical investigation, spiramycin did not demonstrate dramatic benefit as a plaque control agent. This is in spite of the promise shown in the study in hamsters by Keyes et al[31] and the reported success in clinical trials.[32-36]

It must be recognized that the PI used is a measurement for *supragingival* plaque only; the presence or extent of *subgingival* plaque was not assessed. Accepting this limitation, it has been recommended that *unstained* rather than stained plaque be scored because plaque thickness, and not area covered, is a more reliable method of assessing the effects of a therapeutic agent[42] — this advice was followed.

A comparison of maxillary plaque indices — Table 1

Week	0		1		3		7		11	
	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.
Under 1.5	22	24	16	11	7	10	6	3	4	5
1.5 — 2.5	7	3	13	16	20	16	22	24	24	22
Over 2.5	0	0	0	0	2	1	1	0	1	0
Chi-square values	1.618		1.166		1.237		2.018		1.128	

5% chi-square (2.df) = 5.99

A comparison of mandibular plaque indices — Table 2

Week	0		1		3		7		11	
	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.
Under 1.5	19	24	8	10	3	11	4	3	4	5
1.5 — 2.5	10	3	20	17	25	15	22	24	25	22
Over 2.5	0	0	1	0	1	1	3	0	0	0
Chi-Square Values .231	4.285		1.396		7.009		3.162		.231	

5% chi-square (2.df) = 5.99

The six teeth graded were consistent with those suggested by Ramfjord[37] and the criteria used in assigning an index were those of Loe,[38] with the exception that the indices "0" and "1" were combined. In Loe's system, "0" represented "absolutely no plaque" while "1" represented "no visible plaque", but plaque which could be identified by scraping an instrument along the tooth surface. This instrumentation was not performed in the current investigation because disturbance of plaque constitutes a form of therapy and would have interfered with the development of gingivitis. Gingival scoring proved to be a difficult task, especially in the heterogenous population available for testing. Had the volunteers been more homogeneous in their original gingival status, age and sex, and eating habits, or had other clinical scoring methods, such as the use of a crevicular fluid meter,[43] been employed the results might have been different.

Jensen et al[44] tested a 0.5 per cent solution of vancomycin, and all participants (six experimental and six control) developed gingivitis over a three-week period. Bacteriological smears demonstrated that Gram-positive bacteria did not proliferate, and the authors concluded that a predominantly Gram-negative flora was able to form plaque and elicit gingival inflammation in humans. Recent research by Slots[45] has demonstrated that approximately 75 per cent of micro-organisms in deep periodontal pockets are Gram-negative. Analysis of the laboratory data from the current investigation[39] revealed that spiramycin caused a statistically significant reduction in *S. Mutans* and *S. sanguis* for at least three weeks, but had no effect on the number of Gram-negative organisms found in the harvested plaque samples. The presence of the Gram-negative organisms thus may explain the lack of influence by spiramycin on the GI. The decrease in some bacterial types and the unchanged

A comparison of maxillary gingival indices — Table 3

Week	0		1		3		7		11	
	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.
Under 0.5	0	3	1	0	0	0	0	0	0	0
0.5 — 1.5	28	23	26	26	25	24	23	24	22	22
1.5 — 2.5	1	1	2	1	4	3	6	3	6	5
Over 2.5	0	0	0	0	0	0	0	0	1	0
Chi-square values	3.423		1.264		.092		.951		1.021	

5% chi-square (3.df) = 7.81

A comparison of mandibular gingival indices — Table 4

Week	0		1		3		7		11	
	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.	Cont.	Exp.
Under 0.5	3	2	2	2	0	0	0	0	0	0
0.5 — 1.5	26	24	25	25	24	24	23	19	23	20
1.5 — 2.5	0	1	2	0	5	3	6	8	6	7
Over 2.5	0	0	0	0	0	0	0	0	0	0
Chi-square values	1.210		1.931		.429		.596		.215	

5% chi-square (3.df) = 7.81

nature of others also may have been partly responsible for the rather nebulous effect of the drug on PI — i.e., a statistically significant decrease in the mandibular index at week three but no significant change between the two groups at any other time period tested. What influence a higher dosage and/or a longer administration period might have had on the results of this study perhaps merits further investigation.

This investigation was supported by The Richard and Jean Ivey Fund, London, Ontario.

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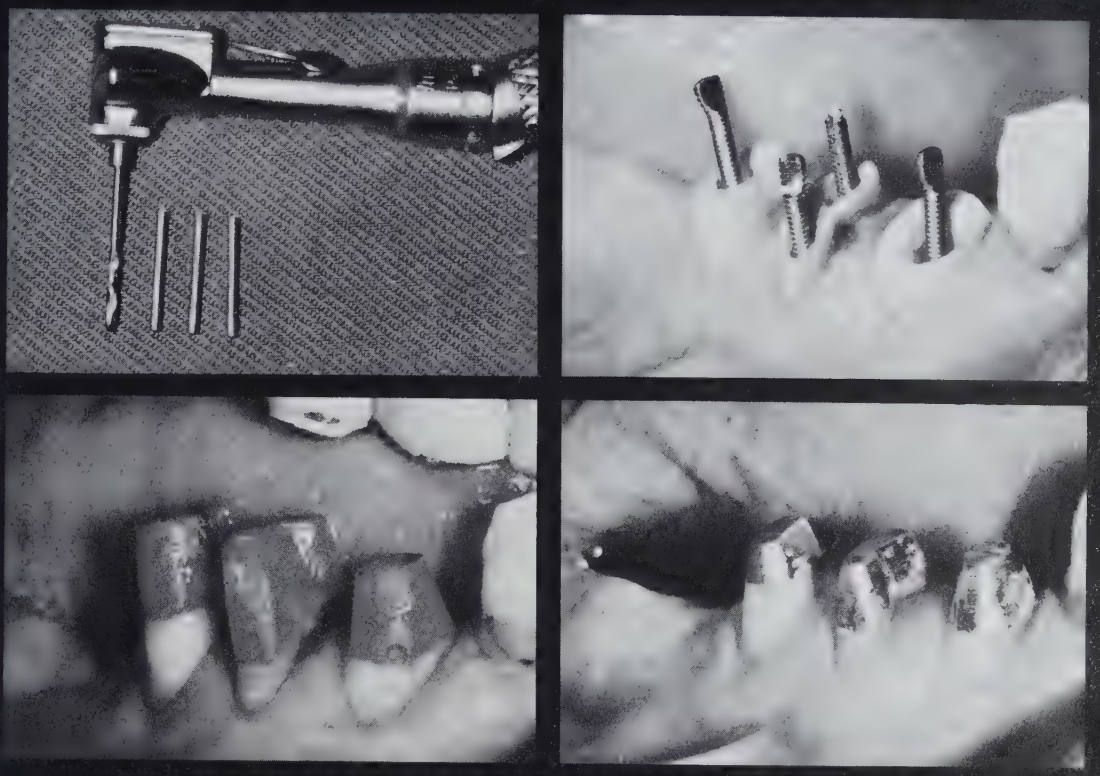

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PRACTICAL CONSIDERATIONS IN THE PREPARATION OF OVERDENTURE ABUTMENTS

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Vancouver

This article discusses overdenture abutments and outlines the common causes of failure and how they can be avoided.

The idea of retaining a few teeth to support a complete denture in a mouth severely damaged by dental disease is not new. This practice has been reported extensively in the dental literature for the last 20 years.[1-5] Telescope dentures,[6] overlay dentures,[7] overlay removable prosthesis[8] and overdentures[4] are terms used to identify a tooth-supported complete denture, and there is little doubt that this procedure is a valuable and practical dental service.[8-10] However, the procedures recommended for preparing the retained teeth and rendering them serviceable beneath a complete denture are varied and controversial.

Clinical procedures

The questions are: (1) Is it necessary to protect a tooth beneath an overdenture with a gold coping to keep it healthy? (2) What contour should a retained tooth have to optimally support the overdenture?

The advocates of covering the coronal surface of the root with a coping[3, 8, 11] suggest that the exposed unprotected dentine will rapidly succumb to caries in the oral environment beneath a denture. The advantages of the gold coping are(i) the potential protection it renders the exposed dentine against recurrent caries and (ii) the clinician's complete control of the coronal shape of the abutment. The disadvantages are (i) a subgingival margin which, in a mouth subject to plaque retention, increases the risk of periodontal disease, gingival recession and the recurrence of caries, (ii) the increased complexity of the procedure, (iii) the increased cost and (iv) the complications presented should it prove desirable to increase denture retention by adding a female/male attachment to the prosthesis at a later stage. Removing these cemented copings is a hazardous task.

Those who advocate simply reshaping the retained root to a desired form suggest filling the opening to the root canal with amalgam or composite and highly polishing the root surface.[4, 9, 12] They further add that recurrent caries is not a problem with patients motivated to meticulous plaque control and the regular use of fluoride. Ralph and Murray[9] state that recurrent caries can occur in unprotected exposed root surfaces. They refer to a personal communication from Benson reporting that 40 per cent of the abutments observed over two years showed recurring caries. Presumably caries resulted from poor oral hygiene.

The design of the coping depends on the desire of the clinician. Some suggest the roots should provide resistance to horizontal and vertical forces by using a long (4 mm) tapered coping,[2] while others advocate using the roots to resist only a vertical force by designing a short (2 mm) coping.[3] The only study[13] found which investigated the load transfer to alveolar bone via overdenture abutments supports the short, rounded design for these teeth.

Causes for failure of overdenture abutments

Poor oral hygiene

The need to motivate the potential recipient of an overdenture to initiate and maintain a regular and thorough plaque removal program is essential for the success of this prosthesis. Plaque will destroy these abutments (Fig 1a and b), protected or not with gold copings, as it will destroy a complex 8 or 10 unit fixed prosthesis. However, most patients finding themselves with the threatened loss of most of their teeth are easy subjects to introduce to this procedure and rarely do they fail to respond to oral hygiene advice. Too often a patient with severe periodontal disease is classified as slovenly and disinterested in personal oral hygiene when frequently the problem is dental ignorance. The repeated success in redeeming most patients in this predicament is echoed through all the writings on the subject.

Poor abutment design

Figures 2 and 3 depict the correct shape desired in the coronal portion of retained roots prepared to a short rounded design. The purpose of this coronal root shape is (a) to provide a non-locking contact with the denture surface and (b) to provide an easily cleansible non-plaque-retaining surface. The incorrect finish at the gingival margin, either in gold or simply on a highly polished root surface (Fig 2) is

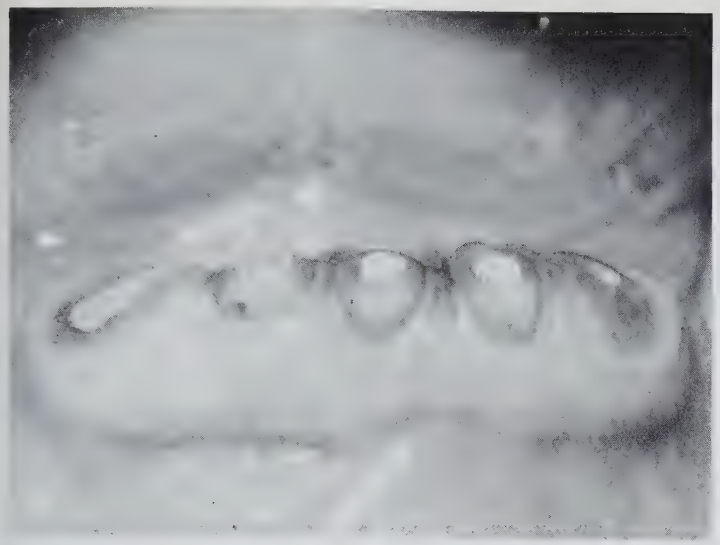

Fig 1(a) Lower five anterior teeth prior to polishing the amalgams and inserting an overdenture.

Fig 1(b) Case presented in Figure 1(a), seen on a six-month recall examination. Oral hygiene was lacking, resulting in caries and gingival inflammation.

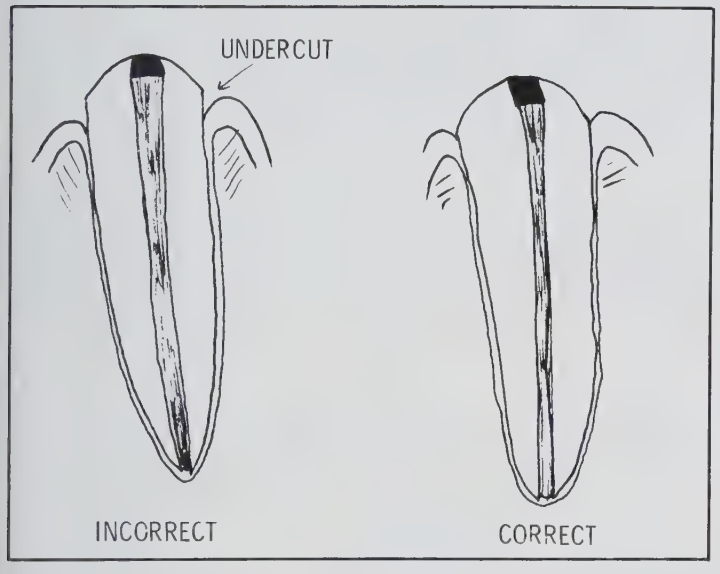

Fig 2 Typical overdenture preparations on an incisor tooth.

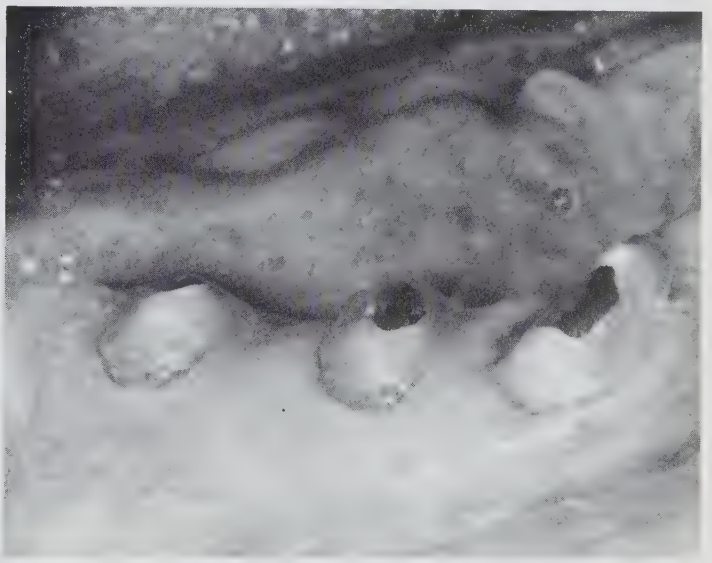

Fig 3 Lower canine and premolars illustrating correct coronal shape.

Fig 4 Hyperaemic and hyperplastic gingiva associated with improperly contoured upper incisor abutments three months after denture insertion.

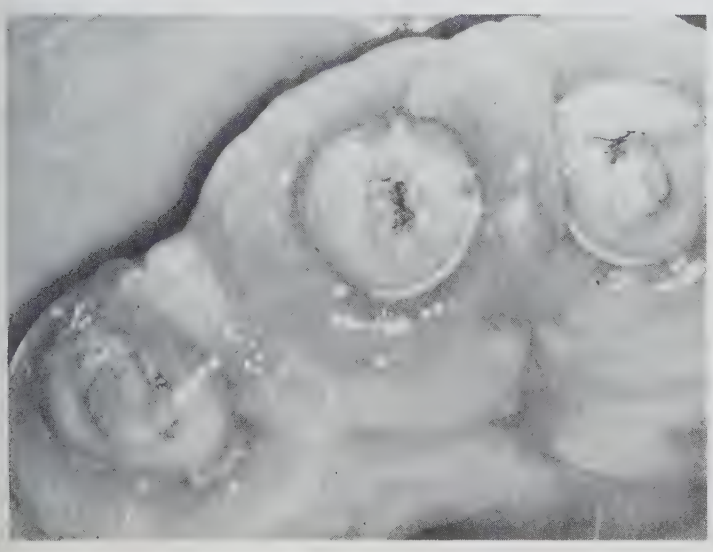

Figure 5 Pressure indicator paste displaced at the apex of the dome on a denture loaded heavily. This contact of tooth and denture base is made only on heavy occlusal pressures.

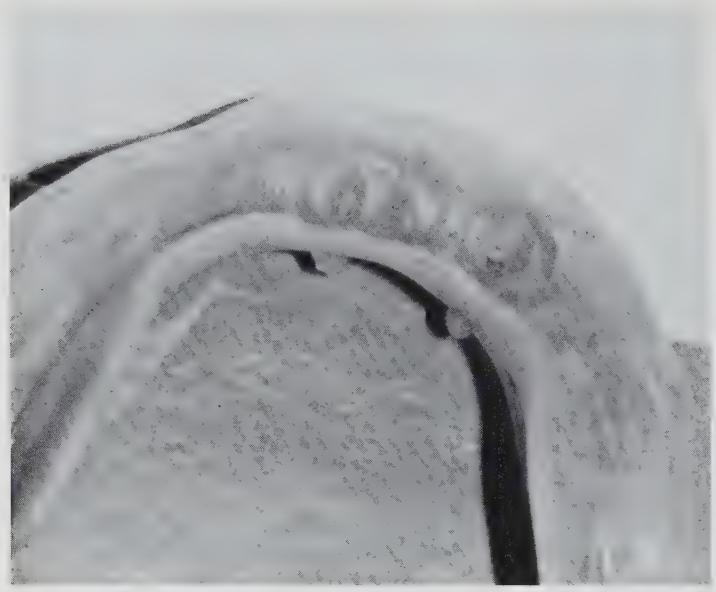

Fig 6 Excess reline acrylic resin escaping through the holes made in the lingual flange of a lower overdenture.

not conducive to easy plaque removal in the vulnerable gingival sulcus area. Frequently a design which leaves a gold, enamel or cementum overhang to trap plaque will give rise to a severe gingival inflammation and hyperaemic swelling in a short time after insertion of the dentures (Fig 4). The cause of this hyperaemia and hyperplasia is often mis-diagnosed as denture trauma. Reshaping of the abutment roots to permit the toothbrush bristles to enter and clean the sulcus will rapidly reduce the edematous swelling and bleeding of the gingiva.

Poor soft tissue health and contour

The need to re-establish the gingival attachment apparatus to optimum health has been elaborately explained in other articles and texts.[4,5] The failure to obtain an adequate width of attached gingiva will frequently create a rapid periodontal pocket extension if oral hygiene is less than perfect.

Poor endodontic therapy

It is rarely possible to reduce a retained tooth to the desired shape without cleaning and obturating the root canal. On occasions, particularly where severe attrition or abrasion has reduced the crown height extensively, secondary dentine will have reduced the pulp canal size, and the desired crown shape can be obtained without endodontic obturation if the periapical bone appears healthy.

Poor abutment tooth denture contact

Figure 5 indicates the contact desirable between the denture and the abutment (as illustrated with P.I.P. paste*) when the denture is loaded heavily. This contact is obtained by locally relining the denture base in the area of the abutment tooth after processing and obtaining correct occlusal contacts. The denture is first relieved of all contact with the abutment tooth, using an acrylic bur. A hole is drilled with a large round bur through the lingual flange or palate beside the hollowed area. A fine grained orthodontic clear or pink acrylic resin monomer** and polymer are mixed to a thick consistency and placed in the denture voids. The teeth are smeared with vaseline, the denture is placed in the mouth and the patient is asked to bite tightly. Any excess resin will escape out of the holes made through the base (Fig. 6). As the resin sets, the denture is removed and replaced frequently. P.I.P paste is then placed on the relined areas, the dentures reinserted and heavy occlusal pressure applied. Contact between the denture and the gingival margin of the tooth is relieved, leaving denture contact only at the apex of the domed tooth preparation.

Poor denture design and construction

It is not the intention of this article to describe a technique for fabricating an acceptable complete denture. Suffice it to say that failure to comply with accepted requirements of aesthetics, base extension, occlusion and jaw relationships required of a complete denture will also render an overdenture damaging to the mouth and unsatisfactory to the patient.

*Pressure Indicator Paste. Mizzy, Inc., Cliften Forge, Vancouver 24422, U.S.A.

**Ortho-jet acrylic liquid, Land Kent Mfg. Co., Inc. Chicago, Ill. 60610, U.S.A.

Dr. MacEntee is an assistant professor with the Department of Restorative Dentistry, University of British columbia, Vancouver.

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ALLERGY TO A PARTIAL DENTURE CASTING: CASE REPORT

Aaron H. Fenton, DDS, MS, FRCD(C)
Toronto

John D. Jeffrey, DDS,
Parry Sound, Ont.

This case report discusses the management of an allergic response to a partial denture casting. A method of testing the allergic reaction to various metals is illustrated and a suggested method of treatment is outlined.

This case report discusses the combined management of a patient's problem by a specialist, acting as a consultant, with the patient's own dentist maintaining contact and providing the necessary treatment.

Dr. Jeffrey wrote a brief outline of the patient's problem and requested assistance. Because of the time involved for the patient to travel for a consultation (approximately three hours each way), Dr. Jeffrey was given a description by telephone of the possible allergic response and the method of testing, and also reference to literature on metal allergy. With this information and advice, he proceeded with treatment as outlined.

Case report

A female patient, aged 38 years, presented with the request for a new, complete upper denture and a partial lower denture (the 4.3, 4.2, 4.1, 3.1, 3.2 and 3.3 were present). An acrylic maxillary denture and a mandibular partial denture, consisting of a metal framework with a high lingual apron and circumferential clasps on the 3.3 and 4.3 (Nobilium casting), were constructed. The maxillary denture has been worn with no difficulties. The metal surfaces of the mandibular partial caused extensive areas of tissue irritation within hours after insertion, consisting of small clear vesicles with an erythematous border, which broke, leaving an open ulcer, and then a grey-yellow slough covered the areas.

Subsequent questioning revealed that this patient had had previous problems with metal objects. Stainless steel sutures that had been used surgically had caused, in her words, "multiple abscesses" in her abdomen. She stated she could not wear a watch or ring unless it was over 14 carat gold, and she always had trouble with earrings unless they were very high carat gold.

The lingual apron was replaced with acrylic and the buccal retentive arms on the 3.3 and 4.3 were replaced with gold clasps (Williams "70" clasp wire — 18 ct. gold wire). The patient developed the same lesions with these clasps (Fig 1).

Dr. Fenton was then consulted. He suggested that the reactions might be due to a trace element in the gold alloy, and recommended the following procedure to check several different types of alloys.

Procedure

Samples of various dental casting alloys were obtained, and the testing program was explained to the patient. With her permission, Blenderm hypo-allergenic tape was used to secure these alloy samples to the forearm. The tape was also applied alone as a control observation (Fig 2). The patient was instructed to note any reactions and return later the same day for observation. She was instructed to remove the samples and contact the office immediately, if she noted any untoward local or systemic reaction.

Based upon the reaction, positive samples were discarded and the negative samples re-applied. Subsequent to a negative forearm skin test, the samples were also tested intra-orally by securing them to the buccal surface of the maxillary denture (Fig 3). When a negative reaction was obtained, this sample was used to fabricate a mandibular removable partial denture framework.

Results

The reactions on the arms were different from those previously noted intra-orally by the patient. She now complained of a burning, itching sensation. Positive reaction areas were slightly red around the borders and the epidermis appeared moist (Fig 2). Swabbing with alcohol produced a sharp pain. Negative test areas had no difference in sensation and only a transient pressure reaction where the metal had been taped in place. These observations are summarized in Table 1.

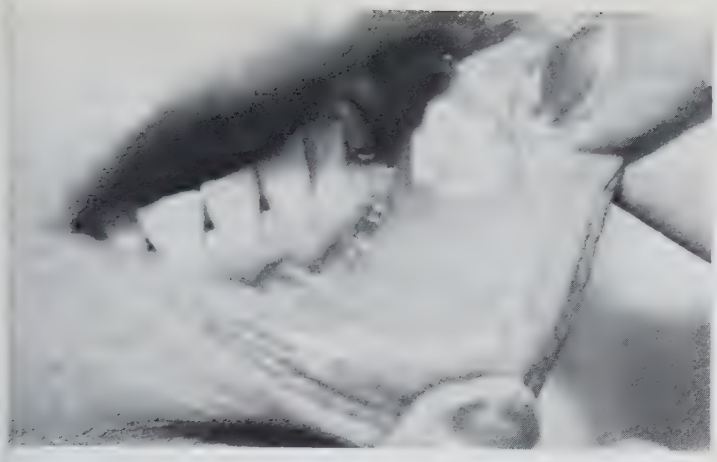

Fig 1 Mucosal reaction to second partial denture constructed with a gold alloy clasp wire.

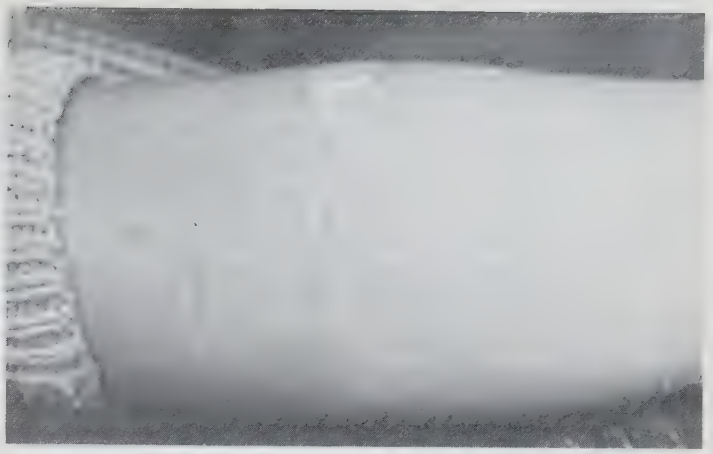

Fig 2 Reactions to application of test samples on forearm.

Fig 3 Pennyweight of test alloy attached to maxillary buccal flange for intra-oral sensitivity test.

Fig 4 Showing no reaction to partial denture framework constructed from negative test sample.

Obtaining the alloy samples posed quite a problem. Dental supply houses and many laboratories carry only one or two types of gold and their samples must be purchased. However, a laboratory was located that was willing to supply and collect the samples for testing.

Due to the fact that the patient's history of tissue reaction was more pronounced orally, it was decided to take the two gold samples (Williams Forty-niner and Jelenko) and embed them in the buccal flanges of the maxillary denture (Fig 3). The patient was instructed to cover the samples with tape if any irritation developed. Within 24 hours, one sample (William's Forty-niner) had caused a reaction orally. It was removed and tape was used to cover the sample until the patient could be seen. The remaining sample (Jelenko) was left for two weeks, with no sign of a reaction.

The Jelenko gold was used to construct a cast framework as in the original partial denture. The laboratory was advised that only new Jelenko gold could be used, and a new crucible should be used for casting — thus avoiding the possibility of contamination with any other gold used by the laboratory.

The partial denture was inserted, and there has been no subsequent problem with the prosthesis (Fig 4).

Forearm skin reactions to dental casting alloys Table 1

Alloy	6 hrs.	24 hrs.	4 days	1 week
Tape test area	–	–	–	–
Williams 70 clasp wire	-			
Williams Forty-niner				–
Williams Harmony (extra hard)	-			
Jelenko	–	–	–	–
Stern	-			
Noble		-		
Semi-precious: Neoloy		-		
Niranium	-			
JD Jelenko	–	-		
Delorro Stalite	–	–		
Nobilium	-			

Discussion

In this case, a more precise initial history could have eliminated the first two attempts at a partial denture framework that would be tolerated by the oral tissues. By taping alloy samples to the patient's inner forearm and periodically checking for tissue reactions, most of the samples were eliminated. Those that appeared to be well tolerated on the skin of the forearm were placed intra-orally. It was found that one sample was tolerated extra-orally but not orally. The remaining sample was used to make a casting and the laboratory was instructed to avoid possible contamination with any other types of gold.

Initially, skin sensitivity tests, followed by oral sensitivity tests to alloys, resulted in the successful selection of a partial denture alloy. Twelve different alloys were tested and only one was found to be compatible. This demonstrates a good method for selecting an alloy for prostheses for persons who are sensitive to metals. The diagnostic services were charged on a time unit basis. Unfortunately, in this case, there were two initial laboratory fees that could have been avoided if the history had been checked; therefore, the dentist absorbed these costs.

A survey of the English Dental Index for the past 15 years revealed only two reports of allergic reaction to a dental casting alloy.[1,2] Other reports[3-5] have discussed the low incidence of reactions to properly cured acrylic denture base materials, although there are two reports,[6,7] of an allergic response to autopolymerizing acrylic temporary crowns.

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RESTAURATIONS TEMPORAIRES ET PROVISOIRES

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Cet article est présenté dans le cadre "retour aux sources". Le texte a été écrit pendant les études du Dr. Morin. La prothèse fixe occupe une place importante dans la clinique et la restauration temporaire (ou provisoire) est une phase contributoire au succès du travail. (N.D.L.R.)

INTRODUCTION:

En dentisterie, il existe plusieurs situations où l'esprit de créativité est impérative non seulement pour mieux servir le patient, mais pour le servir plus facilement. La construction d'une restauration fixe ne se réalise pas dans une même séance, au même titre qu'une simple restauration en amalgame. Elle est plutôt le résultat d'un travail élaboré de planification et d'exécution.

Par la définition de quelques termes, nous comprendrons mieux le sense du sujet que nous abordons:

Restaurer: redonner à la dent toutes ses fonctions.

Restauration temporaire: qui est fabriquée en vue d'une période relativement courte, en attendant la restauration finale.

Restauration provisoire: qui est fabriquée aussi en attendant la restauration finale, mais pour une période relativement longue: > 6 mois (lorsqu'il est difficile d'évaluer le pronostic d'une restauration).

II — DISCUSSION

1) Buts recherchés de la temporisation

Il y a deux fonctions essentielles aux recouvrements temporaires:

1.1 Protéger la dent taillée (dentine et pulpe) contre toute irritation mécanique, chimique ou thermique, car les tubulis dentinaires sont presque toujours exposés.

1. Comme support occlusal pour maintenir la dent dans une position stable et éviter l'extrusion ou l'inclinaison durant les procédures de fabrication de la restauration finale.

Mais aussi pour:

1.3 Restaurer ou maintenir l'esthétique.
1.4 Restaurer la fonction.
1.5 Permettre le rétablissement des tissue environnants.
1.6 Pour la commodité du patient.
1.7 Conditionner le patient à l'acceptation d'un substitut artificiel.

2) Conditions requises pour atteindre ces buts:

2.1 Avoir une forme adéquate et une épaisseur suffisante pour résister aux forces fonctionnelles.
2.2 Avoir l'adaptation marginale maximale permise par la technique et le matériau utilisé.
2.3 Ne présenter aucun excès ni gingival, ni axial (forme de contour).
2.4 Eviter l'engorgement de la papille interdentaire en éliminant tout contact avec les tissus mous.
2.5 Permettre une autostimulation des tissus mous.
2.6 Avoir un point de contact avec la dent adjacente.
2.7 Obtenir une occlusion normale.
2.8 Obtenir un fini de surface lisse afin d'éliminer les porosités capable de retenir les aliments et la plaque.
2.9 Permettre une hygiène adéquate autour de la dent (soie, cure-dent, brosse, etc.)

3) Matériaux utilisés = qualités essentielles recherchées:

Les deux principaux genres de matériaux utilisés pour ce type de restauration sont l'acrylique autopolymérisant et les métaux non précieux comme l'aluminium et le cuivre.

Qualités

3.1 Doit être interte dans les fluides buccaux et avec les tissus mous.
3.2 Doit pouvoir fournir une isolation chimique et thermique à la pulpe. La résine acrylique est excellente sur ce point de vue. Pour les temporaires métalliques, l'isolation est fournie par le ciment de scellement.
3.3 Doit être facile à manipuler et à modifier:
—l'acrylique est facile à modifier avec nos instruments rotatifs tels que: disques à séparer, sablés, pierres montées, etc.

—un manque peut être corrigé par la méthode au pinceau.
—les métaux peuvent être découpés, galbés et brunis, mais avec plus de précaution, car il est impossible d'en rajouter.

3.4 Doit être résistant aux forces de la mastication, redonner une fonction occlusale normale, résister à l'abrasion et à l'attrition:
—la résine acrylique autopolymérisante a le désavantage de s'user rapidement. A déconseiller sur une longue période de temps.
—les résines cuites et les C.A.I. offrent plusieurs avantages quant à leur durée de vie.

3.5 Doit donner une adaptation marginale adéquate:
—sur une courte période de temps, l'acrylique donne des résultats satisfaisants, mais sur une longue période, le ciment se délave dans les fluides buccaux.
—les métaux peuvent être assez bien galbés, mais ils risquent de s'enfoncer gingivalement sous les forces masticatrices et d'aller léser le périodonte.

3.6 Doit être esthétique:
étant donné que les métaux ne sont pas esthétiques, nous sommes limités à de l'acrylique pour la région antérieure.
—les métaux sont réservés aux régions postérieures.

3.7 Doivent donner un fini de surface lisse:
—l'acrylique et les métaux peuvent être très bien polis avec des instruments rotatifs.

3.8 Doit pouvoir servir plusieurs fois sans se briser lorsqu'on le retire de la bouche.

3.9 Ne doit pas irriter les tissus durs et mous lors de sa fabrication.
—l'acrylique a le désavantage de dégager de la chaleur lors de sa polymérisation. Cet inconvénient doit être contrôlé lors de la manipulation.

4) Classification des méthodes:
Il existe deux grandes catégories de fabrication:

4.1 Fabrication directe ou à la chaise: qui signifie que la plupart des opérations sont effectuées par le dentiste lui-même en bouche (ez: fabrication, adaptation, dégrossisage, polissage, cimentation, etc. . . .)

4.2 Fabrication indirecte: qui signifie que le temporaire s'effectue en l'absence du patient.
—a) Il y a la technique dite mixte: où le temporaire est effectué en grande partie par le personnel auxiliaire et finalisé à la chaise.
—b) Technique laboratoire où le temporaire est effectué en laboratoire spécialisé.

Il en existe une gamme très variée qui va de la douille en aluminium non anatomique jusqu'aux restaurations en or, en passant par les recouvrements en polycarbonates, en résine acrylique autopolymérisante, etc. . . . Sachons avant tout à les classifier. (cf. tableau de classification, annexe I).

5) Méthodes de fabrication: (cf. annexe II)
a) description de la méthode
b) avantages
c) désavantages

6) Erreurs commises
Les erreurs les plus fréquentes dans la fabrication d'un temporaire sont:

6.1 Placer la dent en sur-occlusion ou obtenir des contacts sur les versants de cuspides, ce qui favorise des mouvements orthodontiques indésirables à la dent.

6.2 Laisser une margination défectueuse, ce qui cause une irritation de la gencive et peut occasionner une migration de l'attachement épithélial.

6.3 Laisser un sur-contour ou un sous-contour des restaurations, ce qui cause des accumulations alimentaires, des irritations gingivales ou un manque de protection.

6.4 Ne pas reformer les contacts proximaux, ce qui risque de permettre des déplacements.

Si nous gardons toujours à l'idée les buts anticipés des restaurations temporaires, il demeure facile de corriger une situation indésirable.

III — CHOIX PARMI LES METHODES ET CONCLUSION

Il existe donc une gamme très élaborée de méthodes pour fabriquer des temporaires. Il faut avant tout se souvenir que certaines méthodes sont excellentes, tandis que d'autres n'offrent que des solutions partielles.

Par exemple, une méthode comme celle de la couronne en celluloïde pré-fabriquée, n'est utile que pour une dent unique et s'avère être une solution de dernier recours puisqu'elle ne restaure pas la dent dans toute son intégrité.

La méthode avec cire base plate de Caulk est beaucoup utilisée en bureau privé. Elle peut dépanner à certaines occasions puisqu'elle est simple d'application, demande peu ou pas d'appareillage et ne requiert pas de séance préparatoire. Etant donné qu'elle ne permet pas d'obtenir de cirage diagnoctic, il serait préférable de ne l'utiliser que dans des cas de restaurations unitaires (ex: centrale sup.).

Les cas de grande envergure ne devraient être faits qu'après une étude approfondie de la bouche. Pour cette raison, les modèles d'étude et les cirages sont indispensables. Ils nous permettent d'obtenir des acétates.

Si une dentition mérite d'être restaurée, pourquoi ne pas offrir au patient ce qu'il y a de mieux!

annexe I

CLASSIFICATION DES METHODES

I Fabrication directe (à la chaise):

1 Sur préparation simple individuelle:
a) dent antérieure:
— couronne en celluloïde.
— couronne en polycarbonate.

— empreinte alginate.
empreinte de cire baseplate de Caulk avec ou sans papier métal.
— acétate pré-formée.

b) dent postérieure:
— douille en aluminium non anatomique avec Z.O.E.
— couronne en aluminium pré-formée anatomique.
— couronne en aluminium anatomique et acrylique autopolymérisant.
— empreinte d'alginate.
— empreinte de cire baseplate de Caulk avec ou sans papier métal.
— acétate pré-formée.

2 *Sur préparation individuelle pineledge:*
— acrylique et pinceau
— acétate pré-formée.

3 *Pour pont:*
— empreinte de cire base plate de Caulk avec ou sans papier métal.
— couronne zéphyr et acrylique.
— acétate pré-formé.

II Fabrication indirecte (techniques mixtes):

1 *En clinique privée:* (Personnel auxiliaire)

a) avant préparation:
acétate pressée sur modèle de pierre pour dent individuelle ou pont.

b) après préparation:
acétate ou alginate pressée sur modèle de pierre ou d'acrylique.
— pour dent individuelle ou pont.

2 *En laboratoire:* type restauration provisoire.

a) en acrylique cuit: — pour pont.

b) en coulée: — métaux précieux
— métaux non-précieux

annexe II

METHODES DE FABRICATION

II FABRICATION DIRECTE (à la chaise):

1 Sur préparation simple individuelle:

a) dent antérieure:

• *Couronne en celluloïde:*

Durant plusieurs années le traitement disponible consistait en une couronne en celluloïde pour la région antérieure; elles étaient découpées pour s'adapter le mieux possible au pourtour gingival et étaient cimentées au Z.O.E. L'esthétique était plus ou moins respecté et le temporaire ne pouvait être réutilisé à nouveau. Aujourd'hui, plusieurs praticiens utilisent des couronnes en celluloïde avec acrylique autopolymérisant.

— Il faut sélectionner une couronne qui a le bon diamètre mésio-distal de la dent (avec Boley Gauge).
— On place la couronne sur la dent préparée et on la découpe de façon à bien adapter la partie gingivale et à obtenir la bonne longueur gingivo-incisive.
— Il est difficile mais possible d'adapter la partie gingivale de ces couronnes. Pour une couronne donnée, on peut corriger le diamètre en chauffant légèrement la partie gingivale de la couronne avec une spatule. Celle-ci devient plus molle et s'adapte à la dent.
— Souvent, la largeur mésio-distale est correcte, mais le diamètre gingival est trop large:
— on peut remédier en faisant une coupe au lingual du gingival jusqu'à la moitié de la longueur de la couronne.
— les deux parties sont ramenées l'une par dessus l'autre. On marque d'un trait avec un explorateur, on découpe les surplus et on soude le joint avec une spatule chauffée.
— il faut s'assurer aussi d'une réduction linguale adéquate pour être capable d'ajuster l'occlusion sans compromettre le temporaire.
— on lubrifie la dent avec de la vaseline.
— on remplit la couronne d'acrylique autopolymérisante de couleur voulue.
— on la place sur la pile et on retire plusieurs fois avant la polymérisation finale. On vérifie s'il n'y a pas de bulles et on finit ce temporaire avec des pierres montées ou un disque.

Avantages:
— rapide à exécuter.
— ne demande ni cirage diagnostic, ni modèle d'étude.
— un peu esthétique.

Désavantages:
— encore peu résistant à l'abrasion.
— lorsque la partie en celluloïde est enlevée, il y a perte de contact proximal.
— si la partie en celluloïde est conservée, il y a usure rapide du bout incisif et les débris pénètrent entre la partie de celluloïde et l'acrylique.
— ne reproduit pas la forme originale de la dent.

• *Couronnes en polycarbonate:*

Elles ont apporté beaucoup aux temporaires car ces couronnes pré-fabriquées en acrylique cuit sont présentées avec une variété de formes et de couleurs.
— On mesure la largeur mésio-distale de la dent.
— On place la couronne sur la pile et on réduit les surplus.
— On lubrifie la pile.
— On insère de l'acrylique autopolymérisant à l'intérieur et on la place sur la pile.
— On enlève les excès avec un explorateur, on recontourne si nécessaire et on polit.

Avantages:
— les mêmes que la couronne en celluloïde, avec en plus:
— points de contact proximaux conservés.
— plus esthétique, plus dense et plus résistant à l'usure.
— lien chimique entre l'acrylique autopolymérisant et la couronne.

Désavantages:
— ne reproduit pas la forme originale de la dent.
— plus dispendieux.

• *Méthode avec alginate:* (cf. p. 443, "Modern practice in crown and bridge prosthodontic").

Méthode peu utilisée de nos jours, mais qui peut rendre de bons services.

— Quand une taille peut être complétée dans une même séance, une empreinte en alginate est prise avant toute taille sur la dent et gardée dans un milieu humide à 100%.
— Le porte-empreinte doit être au préalable stabilisé avec des appuis de "compound" de façon à retourner toujours au même endroit;
— Quand la taille est terminée en bouche, un séparateur est appliqué sur la dent, de l'acrylique autopolymérisant est appliqué dans l'alginate (couleur appropriée) et le tout est placé en bouche;
— On retire et replace l'empreinte quelquefois dans la bouche avant la polymérisation finale.
— Lorsque la polymérisation est achevée, on place l'empreinte dans l'eau chaude quelques minutes. Ensuite, on dégrossit et finalise le temporaire avant la cimentation avec un ciment temporaire.

Avantages:
— reproduit assez bien la forme originale de la dent.
— pas besoin de modèles d'étude.
— peu d'instrumentation requise.
— rapide d'exécution.

Désavantages:
— nombreux parce qu'on ne peut être certain que l'empreinte s'asseoit bien au fond ou qu'il n'y a pas de bulle dans l'acrylique.
— distorsion facile de l'alginate sous la pression.
— impossibilité de vérifier l'occlusion avant la polymérisation finale.

• *Méthode avec cire "base-plate" de Caulk*

Remplace aujourd'hui la méthode à l'alginate; cette technique est sensiblement la même que celle à l'alginate mais nous offre d'autres avantages.

— La cire est réchauffée de façon à la rendre plastique.
— Avant toute taille, la cire est portée en bouche et doit recouvrir toute la dent et les surfaces adjacentes pour obtenir plus de stabilité.
— La différence essentielle réside dans le fait qu'on fait fermer le patient en relation centrique, ce qui nous permet de bien s'assurer que l'empreinte est bien à sa place lors de la polymérisation de l'acrylique.
— La polymérisation est terminée hors de la bouche, la cire est enlevée.
— Le temporaire est finalisé et cimenté en bouche.

Avantages:
— ceux de la méthode à l'alginate avec en plus vérification de l'occlusion lors de la confection.
— pas besoin de placer la cire dans un milieu humide.

Désavantages:
— impossibilité de savoir s'il y a une bulle ou un manque d'acrylique avant la polymérisation finale.
— danger de distorsion de la cire lors de la sortie et de la pénétration de l'empreinte, parce que la cire n'est pas élastique.

L'emploi d'un papier métal est recommandé pour éviter que la chaleur de polymérisation fonde la cire et que le temporaire reste taché de cire.

• *Méthode avec acétate pré-formé:*
— Cette méthode marqua un très grand pas en avant pour la fabrication des temporaires; elle est et demeure la méthode de choix surtout lorsqu'il s'agit de reconstitutions extensives.
— A partir d'une empreinte en alginate, un modèle d'étude de la bouche est coulé et monté sur articulateur.
— Un duplicata "A" est fait et monté sur articulateur.
— Ce modèle reçoit les corrections à la situation existante en bouche par soustraction de pierre ou addition de cire.
— Un duplicata "B" est fait et représente la situation idéale de la bouche après les modifications.
— Un acétate est fait à partir de ce dernier modèle et découpé de façon à recouvrir au moins une dent adjacente à la préparation et au moins 1 mm de gencive attachée.
— Les autres manipulations sont les mêmes que dans les techniques précédentes.

Avantages:
— l'acétate est effectué après une étude approfondie des modèles d'étude; on sait où on va;
— ne reproduit pas seulement la forme originale de la dent, mais donne à la dent sa configuration idéale (par le cirage diagnostic).
— la translucidité de l'acétate permet de détecter les bulles et éliminer celles-ci avant la polymérisation finale de l'acrylique.
— l'acétate peut nous guider pour la taille idéale des piles.

Désavantages:
— séances préparatoires supplémentaires pour le patient.
— travail le laboratoire supplémentaire pour les montages, cirages et duplicata.
— matériel supplémentaire nécessaire.

N.B.: Selon Ellman, il existerait une méthode compressive pour la formation des acétates. Cette méthode requiert 4-5 min. au lieu de 20. Il s'agit d'une feuille enduite de séparateur à base de silicone et compressée avec un porte-empreinte contenant du "compound" ou silicone. Cette méthode s'avère peu utile si on considère le temps épargné.

b) Dents postérieures:

• *Doulle en aluminium non-anatomique:*
— Très peu utilisée de nos jours.
— Il s'agit de recouvrir une dent préparée d'une douille d'aluminium et de l'adapter aux pourtours gingivaux de la dent.
— La douille en forme de "boîte de conserve" est un peu plus grande à la région cervicale que la dent pile.

— On marque le surplus avec un explorateur, on découpe ces surplus jusqu'à ce que la douille s'adapte bien au pourtour gingival et soit facile à galber.
— On ajuste l'occlusion grâce à la malléabilité du métal et lorsque l'occlusion semble confortable et qu'il n'y a pas d'irritatino de la gencive, la douille est remplie et Z.O.E. est porté en bouche.

Avantages:
— considéré comme méthode de dépannage.
— protection minime de la dent.
— peu dispendieux.
— réalisé dans une même séance.
— peut être utile lorsqu'on a besoin d'une rétraction de la crevasse gingivale avant prise d'empreinte finale.

Désavantages:
— contours proximaux inadéquats.
— occlusion très précaire.
— points de contacts proximaux non conservés.
— margination grossière et traumatisante pour le périodonte si la douille s'enfonce sous les forces de la mastication (donc, à éliminer si doit être utilisé à long terme).
— perte de temps.
— ne peut pas servir plus d'une fois.
— ne peut être utilisé que pour une couronne seule.

• *Couronne en aluminium anatomique:*
— Avec l'arrivée des couronnes préfabriquées, il n'y a plus de perte de temps pour la morphologie occlusale, mais il ay encore adaptation des embrasures et de la ligne de finition.
— Il s'agit de choisir une couronne de diamètre mésio-distal convenable.
— Ensuite, la partie marginale est marquée, découpée, polie et brunie.
— Lorsque l'occlusion est ajustée et que la couronne peut être assise au fond sans blanchiement de la gencive, la couronne est cimentée avec un ciment temporaire.

Avantages:
— rapide à exécuter.
— anatomie relativement adéquate.
— résistant à l'usure.
— bon fini de surface.

Désavantages:
— dispendieux.
— peut s'enfoncer sous les forces de la mastication si le ciment se fracture et irriter le périodonte.
— Occlusion à vérifier.
— Non esthétique.
— On ne peut être certain de la repositionner au même endroit si elle est décimentée.

Cette méthode est valable si le temporaire est utilisé sur une court période.

Les couronnes Ions sont celles qui semblent donner les meilleurs résultats.

• *Couronnes en aluminium anatomique et acrylique:*
— Même technique que la précédente, mais l'intérieur de la couronne est rempli d'acrylique autopolymérisante.
— Les surplus sont enlevés et la couronne est cimentée au ciment temporaire.

Avantages:
— mêmes que précédemment avec en plus:
— meilleure adaptation gingivale.
— peu ou pas de risque de déplacement sous les forces de la mastication.
— peut servir plusieurs fois et être repositionné au même endroit.

Un peu plus à conseiller si elle doit être utilisée sur une période plus longue.

• *Méthode avec alginate:*
— cf. méthode pour alginate sur dent antérieure.

• *Méthode avec cire base-plate de Caulk:*
— cf. méthode avec cire base-plate de Caulk pour dent antérieure.

• *Méthode avec acétate pré-formé:*
— cf. méthode avec acétate pré-formé pour dent antérieure.

2 Sur préparation individuelle pineledge:

• *Acrylique et pinceau:*
— Les trous de la préparation sont préalablement remplis de cire.
— La préparation est comblée d'acrylique par la méthode au pinceau et la rétention est assurée en extendant la résine au-delà des bords de la préparation.

Désavantage majeur:
— doit être détruit complètement lorsqu'il doit être enlevé.

• *Acétate pré-formé:*
— cf. méthode avec acétate.

Avantage:
— peut être réutilisé.

3 Pour pont:

• *Méthode avec cire base-plate de Caulk:*
— Semblable à la méthode vue pour dent antérieure.
— Avant la préparation des piles, on moule avec la cire plastifiée les dents piles et l'espace édenté, et au moins une dent adjacente aux dents piles et on fait fermer le patient en interdigitation maximale.
— Dans l'empreinte de cire, on creuse de 3 à 4 mm en profondeur et en largeur, ce pont relie les deux dents piles au niveau de l'espace édenté.
— Lorsqu'on est prêt à mouler le pont en acrylique, on remplit l'empreinte d'acrylique autopolymérisante, on met en bouche et on fait fermer le patient en interdigitation maximale.
— Lorsque la polymérisation est terminée, l'encoche représentée dans la cire nous donne une barre dans l'acrylique servant de pont ou de mainteneur d'espace.
— Les couronnes sont dégrossies et la partie gingivale de la barre dégagée, de façon à permettre une hygiène adéquate et éviter l'accumulation de débris.

— La partie occlusale est ajustée de façon à ne pas interférer avec l'occlusion.

Avantages:
— rapide à exécuter (dans une même séance).
— remplit toutes les fonctions d'un pontic sauf la fonction occlusale.

Désavantages:
— distorsion possible de la cire.
— fonction occlusale du pontic est non considérée.
— travail exécuté très souvent sand cirage diagnostic.

• *Couronne zéphyr et acrylique:*
— Dans la méthode directe, ce type de restauration est plutôt de type provisoire.
— Elles sont ordinairement fabriquées avec de l'acrylique et des bandes d'or ou de cuivre.
— Des bandes Ney Zephyr en or sont plus utilisées que les bandes de cuivre parce qu'elles ont une plus grande variété de grandeur. De plus, elles ont une ligne à 1 mm du bord gingival aidant ainsi à l'adaptation gingivale.
— On adapte une bande autour de la dent (1 mm sous la gencive) et on dégage l'occlusal de 1 mm.
— On fait une encoche au buccal de façon à toujours repositionner les bandes au même endroit.
— On remplit les bandes adaptées d'acrylique autopolymérisante, et on en applique à la partie externe avec une spatule.
— On place un papier cellophane sur les dents et on fait fermer en interdigitation maximale.
— On fait ensuite faire des mouvements excentriques de façon à donner une forme anatomique à nos dents avants la fin de la polymérisation.
— Après avoir placé toute la masse dans l'eau chaude, la polymérisation est terminée, on trace alors des lignes au crayon pour déterminer la position des fosses, des cuspides, des embrasures, etc. . . .
— On taille ensuite la morphologie occlusale et les aspects buccaux, linguaux et proximaux.
— Finir avec disques, sablés, pierre ponce, etc.

Avantages:
— temporaire plus résistant et plus durable.
— diminue l'expansion thermique de la résine.
— très bonne adaptation gingivale.
— esthétique.

Désavantages:
— très dispendieux.
— long et difficile à exécuter (longue séance clinique).

• *Acétate pré-formé:*
— cf. méthode avec acétate pré-formé sur dent antérieure.

Avantages:
— simple et rapide à exécuter.
— anatomie idéale retrouvée.
— peu dispendieux.
— guide pour réduction des piles.
— fait à partir d'un cirage diagnostic — on sait où l'on va.

Désavantages:
— phases de laboratoire supplémentaire.

II FABRICATION INDIRECTE (techniques mixtes):

Buts:
1) Sauver du temps à la chaise.
2) Diminuer l'irritation pulpaire causée par les chaleurs de polymérisation et le monomère libre.
3) Obtenir une meilleure adaptation finale.

1 En clinique privée (personnel auxiliaire):

a) Avant préparation de la pile:
— Cette méthode suppose une étude de la bouche qu'un cirage diagnostic des espaces édentés et qu'une correction de la situation présente a été faite.
— Des duplicatas et des acétates doivent être prêts.
— Une empreinte en alginate est prise avant que les dents soient préparées.
— Un modèle de pierre est coulé et les préparations sont faites sur le modèle de pierre.
— Ces tailles doivent toujours être minimes, mais ressembler aux préparations finales.
— On place l'acétate plein d'acrylique sur les préparations.
— On moule notre temporaire par entrées et sorties successives.
— Quand la polymérisation est terminée, on dégrossit et on polit.
— Lorsque les préparations sont terminées en bouche, on essaie le temporaire jusqu'à ce qu'il entre librement en bouche.
— Afin d'obtenir une meilleure adaptation du temporaire, on fait un regarnissage des attaches avec de l'acrylique.
— On dégrossit et finalise les temporaires.

b) Après préparation des piles:
— Même chose que la méthode précédente sauf que l'empreinte en alginate est prise après préparation finale des piles.
— Un modèle en pierre ou en acrylique spécial (3 min. de prise) est coulé.
— Le temporaire est fabriqué grâce à l'acétate et au modèle par le personnel auxiliaire.
— Il est même finalisé au laboratoire durant que le dentiste prend une empreinte finale des piles.
— Lors de la mise en bouche, des corrections mineures peuvent être apportées.
— Modification de la technique: pour couronne individuelle.
  — Avec une dent de prothèse en plastic, on vide l'intérieur de la dent et on l'ajuste sur le modèle de la pile préparée.
  — On fixe la dent avec de la cire collante et l'intérieur est comblé d'acrylique.
  — Le tout est dégrossi et poli, l'occlusion ajustée.

Désavantage:
— beaucoup de manipulation et de travail de laboratoire.

2 En laboratoire: type restauration provisoire:

Des restaurations provisoires sont souvent utilisées comme aide diagnostique et comme moyen de traitement. Des dents mobiles peuvent être stabilisées et le comporte-

ment des tissus de support peut être noté. Les restaurations provisoires peuvent ainsi aider à corriger l'occlusion, à altérer l'esthétique et à favoriser des mouvements orthodontiques mineurs.

a) En acrylique cuit:

— Durée de vie d'environ 2 ans.
— Lorsque les cirages diagnostiques sont montés, il s'agit de prendre une empreinte des tailles en bouche.
— Les modèles sont montés sur articulateur.
— Les dents sont cirées sur le modèle avec de la cire blanche spéciale.
— Si des barres de renforcissement doivent être incorporées dans l'acrylique, il s'agit de les incorporer dans la cire lors de cette étape.
— Lorsque les cirages sont finalisés, le modèle de pierre est bourré dans une mouffle spéciale.
— Par la suite, la cire est fondue et remplacée par de l'acrylique qui sera polymérisée par cuisson lente (9 heures).
— Après la cuisson, on procède au démoufflage et à la finalisation de la restauration provisoire.

Avantages:

— aide diagnostique précieuse.
— évite de trop engager le patient financièrement et de s'aventurer dans des résultats litigieux.
— assez solide et résistant à l'usure.
— corrections ultérieures possibles.

Désavantages:

— autant de phases de laboratoire qu'une restauration permanente.
— moins durable que des restaurations en or.
— adaptation de la ligne de finition moins précise.
— obligation de fabriquer un temporaire durant la confection de la restauration provisoire.

b) En coulée:

Des restaurations provisoires en métaux non précieux et en métaux précieux sont utilisées avec restriction.

— Méthode semblable aux coulées en or conventionnelles.
— Lorsqu'un pont est coulé, celui-ci est souvent coulé en une seule section (pas de joint).

Désavantages:

— très long à exécuter.
— dispendieux.

1 Johnson, Philips, Dykema: Constructing a temporary bridge. Modern practice in crown and bridge prosthodontics, 3e edition, 1971, p. 443-447.
2 Johnston, Mumford, Dykema. Temporary coverage. Modern practice in dental ceramics. W. B. Saunders Co. 1967, chap. 5, p. 59-73.
3 Myers, G. E. Textbook of crown and bridge prosthodontics. C. V. Mosby Co. 1969, p. 180-192.
4 Kenneth, W. Fritts. Temporary and provisional restoration. Clinical Dentistry, vol. 4, 1978, chap. 39, 1-16.
5 Séminaire de P.P.F. de Yves Doyon, Février 1974.
6 Notes de cours du Dr Jean et Dr Galindo, 2e année. Pont temporaire, résumé du cours #6.

POSTERS

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NOTICE TO ALL DENTISTS

The Canadian Dental Association has made available, a new membership category called Life Membership.

A Life Membership entitles you to:

- A certificate of life membership
- A complementary subscription to the Journal of the CDA
- Attendance at scientific meetings without payment of registration fees

with no assessment of regular association grants or dues. However, a Life Member shall not be entitled to vote on any question arising at any meeting of the members of the Association.

To qualify for Life Membership:

- You must have 40 years service in the profession or
- Attained the age of 65 years and presently be a member of the CDA

In order to reclassify your membership status, kindly complete the application form provided.

(A Doctor qualifying for Life Membership after June 30th, will become a life member effective January 1st of the following year.)

AVIS À TOUS LES DENTISTES

L'Association Dentaire Canadienne offre maintenant à ses membres une nouvelle catégorie, soit celle de membre à vie.

Le titre de membre à vie donne droit à:

- Un certificat de membre à vie
- L'abonnement au Journal de l'ADC
- La participation aux assemblées scientifiques avec exemption des droits d'inscription.

Les membres à vie ne seront pas tenus de payer les cotisations ordinaires de l'Association. Ils n'auront toutefois pas le droit de vote en ce qui concerne les questions soulevées lors de réunions des membres de l'Association.

Les critères d'adhésion sont les suivants:

- Avoir, à l'actif, quarante années d'exercice de la profession, ou
- Avoir atteint l'âge de soixante-cinq ans et être membre de l'ADC.

Afin de reclassifier le statut des membres, prières de compléter la formule d'adhésion ci-jointe.

(Les dentistes admissibles après le 30 juin d'une année donnée, ne deviendront effectivement membres à vie que le 1er janvier de l'année suivante).

APPLICATION FOR LIFE MEMBERSHIP
CANADIAN DENTAL ASSOCIATION

Name _____
surname given name(s)

DENTAL LIBRARY
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TORONTO 2

Address _____
street apt. no.

_____
city prov. and/or country postal code

Place of Birth _____ Date of Birth _____
date month year

Dental School(s) attended _____ years _____

_____ years _____

Year of Graduation _____ Degree _____

Specialty (if any) _____

All Memberships held in dental organizations for the previous 12 months.

_____

_____

_____

I hereby apply for Life Membership in the Canadian Dental Association.

I understand that my Life Membership entitles me to a subscription to the Journal of the Canadian Dental Association.

Date _____ Signature _____

Any Doctor qualifying after June 30 for life membership will become effective January 1st of the following year.

For office use only

Approved by _____

Date _____

Français au verso

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Lieu de naissance _____ Date de naissance _____
date mois année

Ecole(s) dentaire(s) fréquentée(s) _____ années _____

_____ années _____

Année d'obtention du diplôme _____ Diplôme _____

Spécialité (s'il y a lieu) _____

Au cours des douze derniers mois, membre des organismes dentaires suivants:

_____

_____

_____

Je désire devenir membre à vie de l'Association dentaire canadienne.

Grâce à ce titre, je recevrai, à vie, le Journal de l'Association dentaire canadienne.

Date _____ Signature _____

Les dentistes admissibles après le 30 juin d'une année donnée, ne deviendront effectivement membres à vie que le 1er janvier de l'année suivante.

à l'usage du bureau seulement Approuvé par _____

Date _____

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Although the Canadian Dental Association believes that the classified advertisements which appear in these columns are from reputable sources, the Canadian Dental Association neither investigates the offers being made nor assumes any responsibility concerning them.

OFFICES AND PRACTICES

BRITISH COLUMBIA — ABBOTSFORD. Dental offices for rent in a modern professional building in Abbotsford, British Columbia, adjacent to hospital. Panoramic view. Apply to: McCallum Terrace Holdings, 2151 McCallum Rd., Abbotsford, B.C. V2S 3N8.

BRITISH COLUMBIA — Chilliwack. In beautiful Fraser Valley, one hour from Vancouver. The busy family practice of the late Dr. R. G. Foster. Two operatories, X-ray. Hospital privileges. Must sell to settle estate. Please direct inquiries to: Mrs. M. E. Foster, #204, 299 Main Street, Chilliwack, B.C. V2P 4M9 or phone: (604) 858-4688 (home).

BRITISH COLUMBIA — Chilliwack. Very desirable practice for sale: Six operatories furnished with Pelton Crane Executive modular cabinetry, in dark stained oak; four fully equipped. High gross practice. Excellent opportunity for 1 or 2 dentists. Present staff wishes to remain. Contact: Dr. Ben Vogt, 3-103 Mary Street, Chilliwack, B.C. V2P 4H3, or phone: (604) 792-8691.

BRITISH COLUMBIA — Fernie. For sale on or before April 30, 1979. Family oriented practice, with 3 operatories. Details on request. Contact: Dr. R. H. Campbell, Box 130, Fernie, B.C. V0B 1M0.

BRITISH COLUMBIA — New Westminster. You provide your own patients. We supply a fully equipped, self-contained 3 chair suite. Available immediately on a daily basis. Contact: M.B.H. Services Ltd., #204, 600 Royal Avenue, New Westminster, B.C. V3M 1J3. Phone: (604) 522-8691.

ALBERTA — Calgary. For sale: Well established downtown practice with 2 operatories. Must sell. Phone: (403) 284-1040 (evenings).

ALBERTA — Edmonton. For sale or lease: Well established practice in South West residential area. This opportunity is worth investigating by both recent graduates or established practitioners seeking an improved practice location. Phone: (403) 434-1604 (evenings).

MANITOBA — Winnipeg. For sale: Well established practice, located in busy shopping centre. Three fully equipped operatories, laboratory, private office, waiting room, reception area with room for expansion. Owner leaving province. Please reply to CDA Box Number 1834.

ONTARIO — Brampton. Dental laboratory space for rent in modern, medical air-conditioned building in the heart of Canada's fastest growing area. Reasonable rent. Phone: (416) 451-5802.

ONTARIO — Oshawa. Space available for rent, in new medical/dental building. High quality construction, climate controlled. High insurance area. Available January 1979. Contact: Dr. John Hudson, 167 Simcoe Street N., Oshawa, Ont. Telephone: (416) 725-3221.

ONTARIO — Tilbury. For lease: Modern air-conditioned health centre with 5 physician suites, pharmacy and X-ray unit. Has space available for dentists and a dental hygienist. Thirty miles from Windsor-Detroit area. Cultural, educational and recreational activities. Relaxed small town living in progressive community with big city benefits. Excellent boating, hunting, fishing and winter sports area. Space finished to suit tenant's requirements. Excellent parking. Contact: Tilbury Health Centre Ltd., 30 Prospect Street, Tilbury, Ont. Phone: (519) 682-1311. Dr. C. F. Bryan.

ONTARIO — Toronto. Practice for sale: Desirable location in downtown Toronto, with excellent growth potential. Modern building, 600 sq. ft., fully equipped, including laboratory, reception room, private office and washroom. Owner leaving country. Contact: (416) 598-1216, or reply to CDA Box Number 1824.

ONTARIO — Toronto (North). Lease with option to buy: Twelve year old, high gross dental practice. Lease: present fully equipped operatory, or set up two operatories in a four operatory; two dentists share overheads. Excellent staff. Modern air-conditioned dental building, excellent parking. All benefits of a rural lakeside town. Reply to CDA Box Number 1803, or phone: (416) 722-5931.

ONTARIO — East of Toronto. Busy family practice for sale (30 minutes drive from metro center), established family practice, professionaly designed, 1200 sq. ft. facility in Medical-Dental building, 3 operatories now equipped, Adec carts — Dental-Eze, room for more, hospital privileges available, above average earnings, owner returning to U.S. For additional information contact: Sorrenti Management Inc., 1287 St. Clair Avenue West, Suite 7, Toronto, Ont. M6E 1B8. Phone: (416) 651-2323.

ONTARIO — West of Metro Toronto. For sale: Bright and busy 2 operatory home practice, in fast growing central area, only minutes west of Metro Toronto. Office is modern and well separated from 4 bedroom, 2 storey home. Close to schools, shopping and recreation. Reply to CDA Box Number 1827.

ONTARIO — Woodstock. Excellent opportunity. For sale: Three year old preventive practice in professional building. New four-handed equipment in stylish professionally decorated office. Very high income. Open concept with room for expansion. Small city, thirty miles from large urban centre. Reply to CDA Box Number 1796.

EASTERN ONTARIO. For sale: Dental practice comprising of equipment for two operatories plus new building one year old. Reason health. Asking price $55,000.00 including all equipment, supplies and building. Bilingual preferred. Please reply to CDA Box Number 1837.

QUEBEC — Montreal. For sale: Established general practice, with equipment, in modern group practice, 2,500 sq. ft. Shared facilities and staff including hygienist. Excellent growth potential in pleasant community. Dentist relocating. Reply to CDA Box Number 1829, or phone: (514) 768-0855.

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QUÉBEC — Montréal. Bureau entièrement réaménagé, bien disposé, bien décoré. Pratique jeune, avangardiste dans un milieu favorisé. Facile d'accès. Deux salles opératoires et une salle d'hygièniste restent libres pour un jeune dentiste désirant une pratique de choix. Très avantageux. Répondez au Dr. André Mathieu, 2425 De Salaberry, Suite 114, Montréal H3M 1L1. Téléphone: (514) 337-3116.

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UNIVERSITY OF BRITISH COLUMBIA FACULTY OF DENTISTRY

UNIVERSITY OF BRITISH COLUMBIA. Faculty of Dentistry. The University of British Columbia is seeking a Head for its Department of Oral Surgery which has academic responsibility for the teaching and organization of oral surgery and anaesthesiology for both dental and dental hygiene students. The prospective candidate should have had extensive relevant clinical, teaching and research experience. A demonstratred ability in administration would be a desirable asset. The successful candidate will receive an academic rank appropriate to his or her scholastic accomplishments. Salary is negotiable. The effective date of the appointment will be arranged but will not be later than July 1, 1979.

Applications, nominations or inquiries should be sent to:

The Chairman,
President's Selection Committee,
Oral Surgery,
The University of British Columbia,
Faculty of Dentistry,
2075 Wesbrook Place,
Vancouver, B.C., Canada, V6T 1W5.

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The Division of Periodontics invites applications for places in their Post-Graduate Program in Periodontics. This program which is of two years' duration provides both research and clinical experience leading to a Diploma in Periodontics.

Applications are being accepted for September 1, 1979. Inquiries should be directed to:

Dr. W.I. Vogan, Director
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BRITISH COLUMBIA — Kamloops. Associate wanted for preventive, family-oriented practice. Three operatories. Full time hygienist. Phone: (604) 554-2032 or write to: Dr. R. J. Holditch, 31 - 750 Fortune Drive, Kamloops, B.C.

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MANITOBA — Flin Flon. Associate required in December or January. Good opportunity for male or female dentist in family type practice. High remuneration, 50% gross, 50% lab bills or salary. Some travelling is involved. Good recreational area. For further information contact: Dr. Malcolm Crozier, Box 637, Flin Flon, Man., or call collect (204) 687-4214.

ONTARIO — Toronto. Oral surgeon wanted as associate with a diverse, growing Metropolitan practice. Please send resume. Reply to: CDA Box Number 1832.

ONTARIO — Oshawa. Associate wanted for humanistic, preventive-oriented practice, in newly constructed dental/medical building. All new equipment (Cox), etc. Excellent financial opportunity. Enjoy practising in pleasant surroundings with a congenial group commencing January 1979. Contact: Dr. John Hudson, 167 Simcoe Street N., Oshawa, Ont. Telephone: (416) 725-3221.

NEWFOUNDLAND — St. John's. Associate wanted for busy practice in modern air-conditioned clinic. Associate will have 2 operatories, fully equipped with Midwest Dental Assistant units and use of Panorex X-ray. Dental hygienist also in clinic. Interested parties please contact: Dr. Robert F. Quigley, 6T7, 257 LeMarchant Road, St. John's, Nfld. Phone: (709) 579-2115 (office) or (709) 726-6247 (residence).

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ONTARIO — Dental Underserviced Areas. The Ontario Ministry of Health offers financial support for dentists to establish practices in designated underserviced dental areas. Locations are available throughout Ontario. Incentive grants, payable over four years, are $18,000 in Northern Ontario and $14,000 in Southern Ontario. Alternatively, a guaranteed net professional income of $28,000 per annum is offered in Northern Ontario. A number of salaried positions are available on mobile dental coaches. Apply to: Dental Officer, Program for Underserviced Areas, 15 Overlea Blvd., Toronto. Ont. M4H 1A9 or phone: (416) 965-2647.

ONTARIO — Cambridge. Oral surgeon required for rapidly growing city, sixty miles west of Toronto. Excellent opportunity to work in association with a general practitioner in a new large office, equipped with Panorex and surgical operatory. Hospital affiliation available. Terms very flexible. Reply to CDA Box Number 1822.

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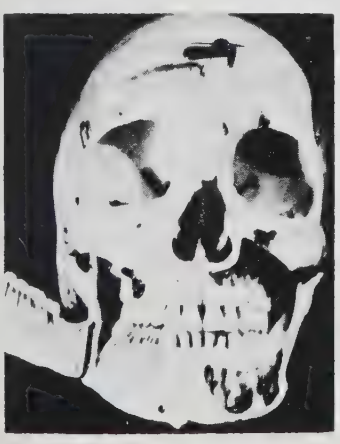
UNIVERSITY OF BRITISH COLUMBIA FACULTY OF DENTISTRY

UNIVERSITY OF BRITISH COLUMBIA. Faculty of Dentistry. The University of British Columbia is seeking a Head for its Department of Restorative Dentistry which has academic responsibility for teaching in the areas of prosthodontics, (including crown and bridgework) paedodontics, endodontics and operative dentistry for both dental and dental hygiene students. It is expected that programmes at the graduate and postgraduate levels will be developed in the near future. The prospective candidate should be expert in one of the above fields, preferably with specialist qualification where appropriate, and have had extensive relevant clinical, teaching and research experience. A demonstrated ability in administration would be a desirable asset. The successful candidate will receive an academic rank appropriate to his or her scholastic accomplishments. Salary is negotiable. The effective date of the appointment will be arranged but will not be later than July 1, 1979.

Applications, nominations or inquiries should be sent to:

The Chairman,
President's Selection Committee,
Restorative Dentistry,
The University of British Columbia,
Faculty of Dentistry,
2075 Wesbrook Place,
Vancouver, B.C., Canada, V6T 1W5.



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La mandibule est amovible et peut se retirer. La maxillaire supérieur et la mandibule sont ouverts d'un côté, permettant de voir les racines des dents avec leurs vaisseaux et leurs nerfs. Un côté du maxillaire supérieur présente une petite fenêtre; de l'autre une coupe sagittale des dents passe par les racines, donnant une réelle et merveilleuse vue de celles-ci. Toutes dents sont naturelles.

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FLORIDA — Indian Rocks Beach. Modern condominium with 2 bedrooms, 2 bathrooms, central air-conditioning, dishwasher, heated pool, sauna, games and exercise rooms. No children. Monthly. December still available. Contact: Jim McBirnie. Telephone: (416) 889-7660.

FLORIDA — Sarasota Bay. El Conquistador Country Club. New 2 bedroom, 2 bathroom condominiums. Completely furnished. Free club membership for two including social, golf, tennis. Two pools. Sauna. $1250.00 U.S. monthly. Reply to CDA Box Number 1838.

UNIVERSITY OF MANITOBA FACULTY OF DENTISTRY

Applications are invited for a position in the field of Operative Dentistry.

Responsibilities include teaching undergraduates at both preclinical and clinical levels. Excellent opportunities and facilities are available for research interests.

Rank and salary dependent upon teaching and clinical expertise. Credentials must be compatible with licensure requirements for the Province of Manitoba.

For further information or for submission of applications, contact Dr. P. M. Jackin, Rehabilitative Dental Science Department, Faculty of Dentistry, University of Manitoba, 780 Bannatyne Ave., Winnipeg, Manitoba, R3E 0W3.

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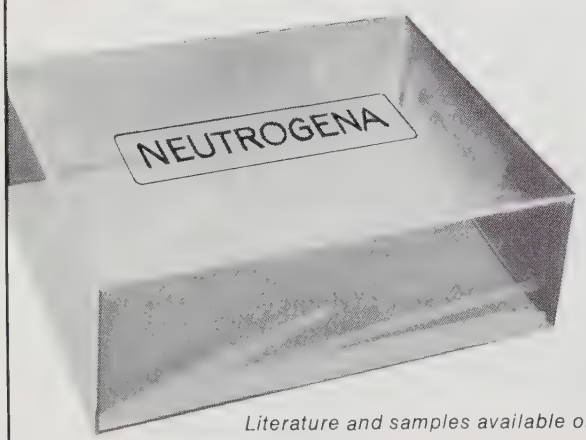

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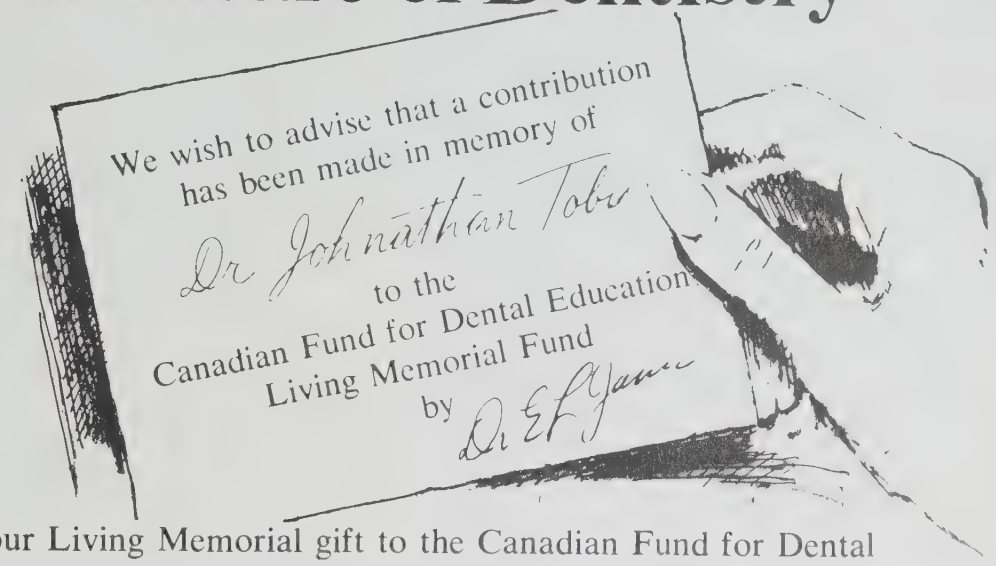

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December 1978/Volume 44/No. 11

Canadian Dental Association/Association Dentaire Canadienne

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History and Current Status
ccreditation in Canada

ual Index, 1978

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†Beiswanger, B.B., *et al.*: J. Dent. Child. 45:137, 1978

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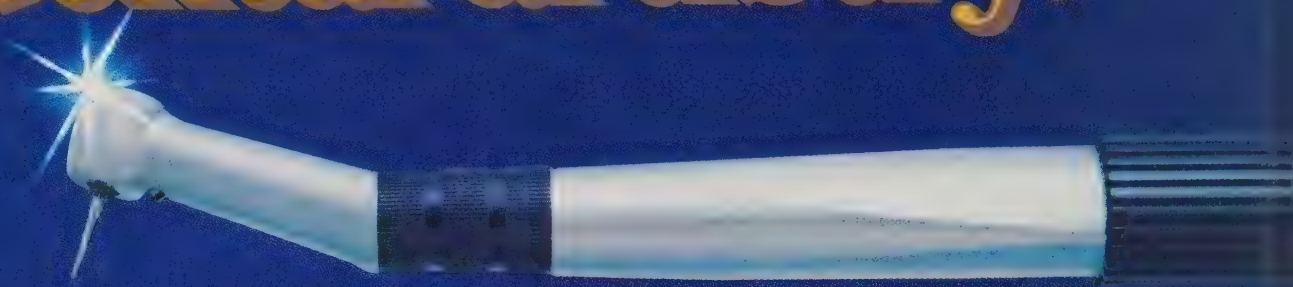

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JOURNAL

of the Canadian Dental Association
de l'Association Dentaire Canadienne
December 1978/Volume 44/No. 11

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Announcements/Avis

We urge readers to confirm meeting dates with the contact listed with each announcement.

Canadian Dental Association
1979, Quebec City, September 9-12

Canadian Meetings

Calgary and District Dental Society Banff Seminar, March 2-4, 1979. Three one-half day seminars at the height of the spring skiing season. Contact: Dr. Richard Odland, President, Calgary and District Dental Society, 615, 906-8 Avenue S.W., Calgary, Alberta T2P 1H9.

Third Canadian Congress of Dentistry for Children, Vancouver, April 6-8, 1979. Contact: Dr. G. M. Jinks, Suite 301, 1701 West Broadway, Vancouver, British Columbia V6J 1Y3.

Ontario Dental Association, 112th Spring Meeting, Sheraton Centre, Toronto, May 13-16, 1979. Contact: Mrs. W. C. Durham, 234 St. George Street, Toronto, Ontario M5R 2P2.

Les Journées Dentaires du Québec, Queen Elizabeth Hotel, Montreal, May 27-31, 1979. Contact: Dr. Morton R. Lang, 5253 Decarie Blvd., Montreal, Quebec H3W 3C3. Telephone: (514) 481-0397.

British Columbia College of Dental Surgeons 1979 Convention, Hotel Vancouver, June 5-8, 1979. Contact: College of Dental Surgeons of British Columbia, 1125 West Eighth Avenue, Vancouver, British Columbia V6H 3N4.

Western Canada Dental Society Convention, Hotel Saskatchewan, Regina, June 7-9, 1979. Contact: Dr. T. E. Donavon, 205 McCallum Hill Building, Regina, Saskatchewan S4P 2G6.

Alberta Dental Association, Annual Convention, Red Deer, Alberta, June 7-9, 1979. Contact: Dr. Ron Gish, Lacombe, Alberta.

7th International Symposium on Dental Hygiene, Vancouver, British Columbia, July 25-28, 1979. Contact: 7th International Symposium on Dental Hygiene, c/o Venue West Ltd., 1704-1200 Alberni Street, Vancouver, British Columbia V6E 1A6.

Canadian Association of Orthodontists, 31st Annual Meeting and Convention, Hotel Frontenac, Quebec City, September 8-9, 1979. Contact: Dr. R. Faith, 605-1538 Sherbrooke Street West, Montreal, Quebec, or Dr. J. J. Schachter, Box 952, Saskatoon, Saskatchewan.

Canadian Association of Oral and Maxillofacial Surgeons Annual Meeting, Quebec City, September 8-11, 1979. Theme: Maxillofacial Trauma. Contact: Dr. Victor Goodyer, 565 St. Jean, Quebec City, Quebec G1R 1P5.

International Meetings

American Association of Oral and Maxillofacial Surgeons Clinical Congress, Salt Lake City, Utah, January 20-21, 1979. Contact: AAOMS, 211 East Chicago Avenue, Suite 930, Chicago, Illinois 60611.

Bermuda Dental Association, Mid-Winter Meeting, Southampton Princess Hotel, Bermuda, January 20-22, 1979. Contact: The Secretary, Bermuda Dental Association, P.O. Box 785, Hamilton, Bermuda. Telephone: 809.29.27676.

Virgin Islands Dental Association Meeting, St. Thomas Sheraton Hotel and Marina, February 29-March 3, 1979. Contact: Virgin Islands Dental Association, c/o Travel Service, Inc., P.O. Box 1691, Charlotte Amalie, V.I. 00801.

International Conference on Oral Implantology, Jerusalem, Israel, April 1-5, 1979. Contact: Conference Travel of Canada Ltd., 11 Adelaide Street West, Suite 903, Toronto, Ontario M5H 1L9.

Asian Pacific Dental Federation, 9th Dental Congress, Merlin Hotel, Kuala Lumpur, Malaysia, April 23-27, 1979. Contact: Dr. Lim Chee Shin, P.O. Box 234, Petaling Jaya Selangor, Malaysia.

Irish Dental Association, Annual Scientific Congress, Waterville Lake Hotel, County Kerry, April 25-28, 1979. Contact: Conference Secretary, Irish Dental Association, 29 Kenilworth Square, Dublin 6, Ireland.

American Dental Society of Europe, 85th Meeting, St. Moritz, June 25-29, 1979. Contact: Brian J. Parkins, Society Secretary, 57 Portland Place, London W1N 3AH, England.

Second Asian Pacific Congress in Anxiety and Pain Control in Dentistry, Honolulu, Hawaii, July 2-5, 1979. Contact: Australian Society for the Advancement of Anaesthesia and Seda-

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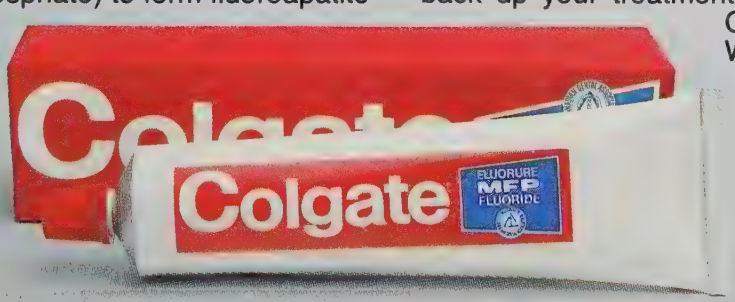

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Letters to the Editor

Dental I.Q.

The article by Dr. D. S. Moore in the September issue of the Journal "Should a prerequisite for acceptance into dentistry be a high dental I.Q.?" should, I hope, produce some response from our dental confreres.

Dr. Moore's assumption that "one would expect that dental students commencing dentistry would have a high dental I.Q." hits a sour note with me. I believe that it is a commonly accepted fact that dentists as a whole, in the past, have not stressed prevention enough in their practices. Since many of us have heritages that extend to the "old country" overseas where dentistry looks even further behind, I wonder where some dental applicants would pick up the exposure to prevention. I think it ludicrous to suggest that an applicant be rejected if he hasn't been fortunate enough to have someone "turn him on" to prevention.

If it is true, as Dr. Moore suggests, that "low dental I.Q. of some dental applicants does not change after graduation", then I wonder what our chances are of getting across to our patients. After all, a captive audience for four years should produce some good results.

Len Boksman, DDS
Burlington, Ontario
U.W.O. '72

The Saskatchewan Dental Plan
requires
DENTISTS

The Saskatchewan Department of Health has several positions in various locations available to dentists interested in the Saskatchewan Dental Plan for Children.

These positions which are to be established during 1979 will offer an opportunity for members of the dental profession to become involved in North America's first province wide publicly run Dental Program for Children.

A team approach is used to deliver both preventive and treatment care services to children up to 14 years of age. Saskatchewan Dental Nurses, Certified Dental Assistants and Dentists together with supportive staff make up the teams.

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Salary: $31,212 - $42,420 (Depending on experience and qualifications)

Qualifications: Candidates will be eligible for registration with College of Dental Surgeons of Saskatchewan*, with practice experience related to Pedodontics.

*Graduates of Canadian Dental Schools and *Accredited United States Dental School after 1948* can register in Saskatchewan without further examination.

For information and application forms, write to:

Director, Saskatchewan Dental Plan
Department of Health
3211 Albert Street
Regina, Saskatchewan
Canada S4S 5W6

Phone (306) 527-1648

Announcements . . .

Continued from page 486

tion in Dentistry, Suite 904, Hooker House, 175 Pitt Street, Sydney, New South Wales 2000.

Society for the Advancement of Anaesthesia in Dentistry, Second International Congress on Modern Pain Control (Sedation, Anaesthesia and Analgesia in Dentistry), Royal Lancaster Hotel, London, England, July 13-16, 1979. Contact: Secretary, SAAD '79, 53 Wimpole Street, London W1M 7DF, England.

CDA Board of Governors announces interim meeting

The Canadian Dental Association's Board of Governors will hold its interim meeting March 12 and 13, 1979, at the Chateau Laurier Hotel in Ottawa.

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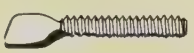

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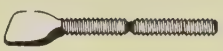

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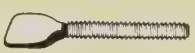

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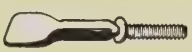

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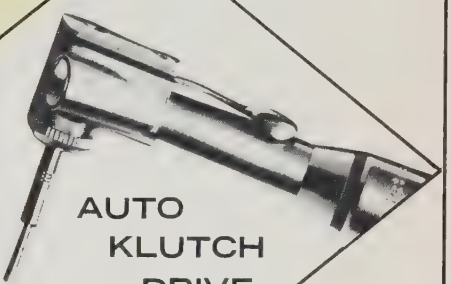

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The Journal of the Canadian Dental Association is currently soliciting research and clinical articles for publication. Interested contributors are asked to use the following outline of requirements when preparing manuscripts.

Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies — original and a carbon — typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, 8½ × 11 inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

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References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. J Canad Dent Ass 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

Illustrations: Line and halftone illustrations should be of high quality for satisfactory reproduction.

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We need your active support through membership. Can you afford to lose your voice?

Michael J. Cripton,
Chairman,
CDA Membership Committee

Malpractice insurance coverage extended

Malpractice Insurance coverage under the CDA National/Provincial Insurance Plan will, in future, automatically be kept in force for a five-year period after the death or retirement of an insured practitioner.

This important change in the plan takes effect on January 1, 1979. It replaces the present procedure under which a retiring dentist or hygienist (or the estate of a deceased practitioner) must make a separate application and pay a separate premium for continuation of insurance. The new procedure will maintain coverage automatically, thus making sure that coverage remains uninterrupted to protect the estate or retired practitioner.

The improvement will be funded by a 5 per cent increase in current premium rates, effective January 1, 1979.

The need for such insurance arises from the fact that even though a dentist or hygienist may have died or withdrawn from practice, a malpractice claim could be brought against the practitioner or the estate, arising out of events which occurred during active practice. Such insurance is required in some Canadian provinces and the change in the CDA National/Provincial Insurance plan will meet this requirement.

The extension of coverage will apply automatically to every practitioner insured under the plan at the time of death or lapse of license. (Malpractice coverage under the CDA National/Provincial Insurance Program is *not* available to Ontario dentists, whose malpractice insurance is provided through the licensing body.)

This B62 is a lot more than a shade. It's a promise of Trubyte® quality in the denture teeth.

Trubyte builds so much into its fine artificial tooth products. The shade guide makes the promise; the denture teeth *deliver* . . .

The beautiful, natural moulds. The vital appearing translucence and fluorescence. The minute anatomical details that reflect and refract light the way natural teeth do.

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Then follow on to Hawaii where a reconvening Course is offered in Honolulu, April 14, 1979. Free Draw for 2 Tickets to Hawaii if registered before Feb. 1, 1979.

For information write to:
Dr. G. M. Jinks, Suite 301
1701 W. Broadway, VANCOUVER, B.C.
V6J 1Y3

DR. J. A. GUEST APPOINTED BOARD CHAIRMAN OF CFDE

Dr. James A. Guest of London, Ontario, was appointed Chairman of the Canadian Fund for Dental Education's Board of Trustees at the recent CDA Board of Governors meeting in Winnipeg. He succeeds Dr. John W. Neilson of Winnipeg who resigned after serving as Chairman for the last three years. Dr. Neilson will continue as a Trustee until the completion of his term in 1979.

Dr. Guest has been a CFDE Board member since 1974 and was the unanimous choice of his fellow Trustees to replace Dr. Neilson as Chairman. He has conducted a general practice in London for over 30 years and has also been a part-time teacher of Restorative Dentistry at the University of Western Ontario since the Dental Faculty started in 1966.

Dr. Guest was President of the London Dental Society in 1953 and subsequently a member of the Ontario Dental Association's Board of Governors for six years and a member of its Executive Council for four years.

Other CFDE Board changes include the appointment of Dr. Robert Dupont of Montreal as a successor to Dr. Henri Brouillet (also of Montreal) who retired after serving with distinction for a full term of six years.

Dr. Dupont has been active in organized dentistry for many years and is currently a member of the Board of Directors of the Quebec Dental Surgeons Association.

Dr. J. A. Guest

Mr. Stanley O. Tebutt, Vice-President of Dentsply Canada Limited, was reappointed as Vice-Chairman of CFDE and Mr. Alex S. Currie, President of Denco, as a Trustee.

EXPERT TAKES ISSUE WITH FLUORIDATION CRITICS

In spite of 33 years of scientifically documented, positive results, there is still widespread distrust and misunderstanding about the effects of water fluoridation programs upon community health.

Speaking before the American Society of Dentistry for Children in Anaheim, California, Dr. Stephen Wei stated that anti-fluoridation groups are still creating the illusion that a scientific controversy exists over the use of the chemical. Dr. Wei, who is Head of the Department of Pedodontics at the University of Iowa and an internationally recognized expert on fluoride therapies, said, "The fact is that 108 million Americans are now benefitting from fluoridated water. Many millions more are manifesting improved health as a result of rinse programs and topical applications made by the family dentist."

A major portion of the concern about fluoridation programs stems from reports that the chemical has been proven to be carcinogenic. According to Dr. Wei there is absolutely no truth to these allegations. As recently as 1974, the city of Los Angeles was involved in a heated controversy over the proposed fluoridation of the water supply. Residents were barraged with anti-fluoridation literature which claimed that a scientific study had proven the chemical had provoked a 10 per cent increase in cancer-related deaths in fluoridated communities. "These results were totally refuted by the National Cancer Institute, The Royal College of Physicians and other leading national and international scientific groups," said Wei.

"What do we know about fluoride?" Wei asked his audience. "We know that it reduces caries by 60 per cent at a cost of only 20 to 40 cents per capita per annum. We know that not only is the dental health of children improved by the chemical but also that adults can enjoy the benefits of the systemic influence of fluoride," he declared.

Dr. Wei noted the irony of the charge that fluoride is an unnatural chemical additive. "It is almost impossible to get any water or food that is completely free of fluoride," he said. "Whether the chemical is present naturally or added to the water, it is the same compound with the same beneficial effects." Observing the much improved dental health of children visiting the pedodontic clinic at the University of Iowa after the community's water fluoridation program took effect, Wei called for an end fo the hypothetical controversy over the benefits of the chemical. "It's time we stopped giving credence to this vocal minority of persons who have ignored the disciplines of epidemiology and scientific evidence, and take action to achieve the promise of prevention we know we can achieve with fluoride."

NOTICE TO ALL ADVERTISERS

Rates for all display and classified advertising in the Journal of the Canadian Dental Association will be increased as of January 1, 1979. See page 526 for new classified rates.

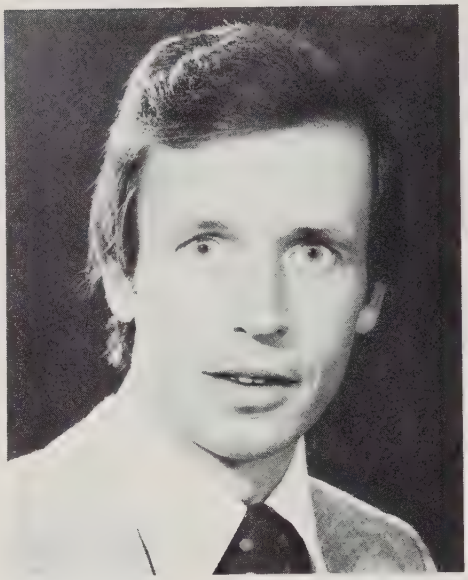
MONTREAL DENTIST IS PRESIDENT OF CANADIAN SOCIETY OF FORENSIC SCIENCE

The Canadian Society of Forensic Science has appointed Dr. Robert B. J Dorion of Montreal as president. Dr. Dorion is the first dentist to be appointed president of this organization.

The Society's membership consists of 450 forensic scientists from across Canada and abroad representing the entire spectrum of forensic specialties. Dr. Dorion's specialty is forensic odontology.

A dental graduate of McGill University, he was the first Canadian dentist to obtain certification in his specialty from the American Board of Forensic Odontology. He is a member of the board of directors of that organization and is also a fellow of the American Academy of Forensic Sciences.

Dr. Dorion teaches forensic odontology at all three dental faculties in the Province of Quebec and has lectured extensively throughout Canada and the United States. In addition to his private practice in Montreal, he serves as consultant in forensic dentistry to the "Laboratoire de Médecine Légale", Quebec Ministry of Justice.



Dr. R. B. J. Dorion

CDA EXPANDS EXISTING FILM SERVICE

In a continuing effort to expand the services offered to its members, the Canadian Dental Association has taken out membership in the National Film Library of Canada. As a result of this, CDA members are now entitled to unlimited rental privileges of all National Library films and access to all other services provided by the NFL.

CDA members wishing to take advantage of this new service are requested to fill out the application form below so we can send you our NFL membership number (which must appear on all requests for NFL services) along with additional information on how to obtain films, catalogues, etc.

Bureau of Public Information
Canadian Dental Association
1815 Alta Vista Drive, Ottawa, Ont. K1G 3Y6

CDA Membership number .....

Name .....

Address .....

..... Postal Code .....

CDA Retirement Savings Plan

Unit Values of the Canadian Dental Association's Retirement Savings Plan stood as follows on October 31, 1978:

Common Stock Fund	$34.068
Fixed Income Fund	$21.321
Guaranteed Fund	$15.112
Balanced Fund	$10.605

Total assets (market value) of the plan were $30,603,427.26.

The previous month's figures, as of September 30, 1978, stood as follows:

Common Stock Fund	$35.346
Fixed Income Fund	$21.595
Guaranteed Fund	$15.030
Balanced Fund	$10.897

Total assets (market value) of the plan were $31,184,228.15.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ontario M5R 2P2.

Canadian oral and maxillofacial surgeons elect new executive

The Canadian Association of Oral and Maxillofacial Surgeons has announced its executive for the 1978-79 term of office. Executive officers are: Dr. Guy Maranda, president; Dr. J. H. Gryfe, president-elect; Dr. Pierre Surprenant, secretary; Dr. R. E. Warren, treasurer; and, Dr. Victor Goodyer, 1979 convention chairman.

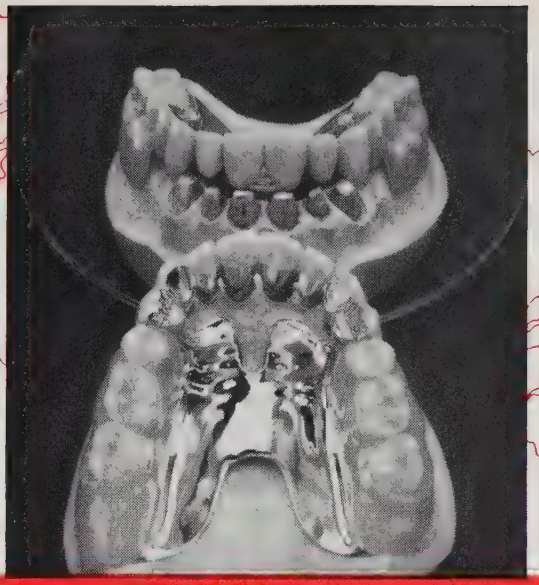
Deaths

Caron, Leonard, 56. Rivière du Loup, Quebec. University of Montreal, 1948. 30-8-78.

Manual, David G., 34. Pictou, Nova Scotia. Dalhousie University, 1971. 9-9-78.

Sidenberg, G. Robert, 69. Toronto, Ontario. Royal College of Dental Surgeons, 1933. 28-9-78.

There's a Nobilium laboratory near you



A MARI USQUE AD MARE: FROM SEA TO SEA

Wherever you practice there is a Nobilium laboratory nearby . . . ready to process your partials with the "aristocrat of chromium alloys" . . . partials that satisfy every patient desire for dependable fit, functional service, oral comfort and lifelike aesthetics. Here is the list of skilled laboratories from British Columbia to Nova Scotia equipped with the latest Nobilium equipment and materials and dedicated to serve your every requirement. Entrust your prescriptions to them with confidence.

ONTARIO — TORONTO

Duracast Dental Laboratories
8 Taber Road, Rexdale

Hirsh Dental Laboratories Limited
495 Adelaide Street West

Modent Dental Laboratory
881 Eglinton Avenue West

Pearce Dental Lab
250 Lawrence Avenue West

The Posen & Furie Dental Laboratories Limited
1366 Bathurst Street

Walter Wood Dental Laboratories
527A Bloor Street West

ONTARIO — HAMILTON

Allen & Rollaston Dental Laboratory
Medical Art Bldg., Hamilton 20

ONTARIO — St. CATHARINES

J. W. Birnie Dental Lab.
206 King Street

ONTARIO — CAMBRIDGE

Achmann Dental Lab.
87 Grand Ave. South

ONTARIO — ORILLIA

Orillia Dental Laboratory
225 West Street North

ONTARIO — OSHAWA

Multi-County Dental Laboratories
172 King Street East

BRITISH COLUMBIA — VANCOUVER

Northwest Dental Laboratories Limited
1070 Homer Street

BRITISH COLUMBIA — VICTORIA

Turner Dental Laboratory
1207 Douglas Avenue, Suite 521

NOVA SCOTIA — AMHERST

Walter Horton Dental Laboratories Limited
31 La Planche Street

ALBERTA — CALGARY

Pro-Dent Lab. Ltd.
6707 Elbow Drive S.W.

Frame Master Lab.
339 - 6th Avenue S.W.

MANITOBA — WINNIPEG

Associated Crown & Bridge Laboratory, Limited
201 - 407 Graham Ave.

Manitoba Dental Labs.
603 Wall Street
Winnipeg, Man. R3G 2T3

ALBERTA — EDMONTON

Northwest Dental Laboratory
10540 - 115th Street

Universal Dental Laboratories Ltd.
10066 Jasper Avenue

New-Johnston Dental Labs.
10202 - 102 Street

SASKATCHEWAN — SASKATOON

Aurum Crest Dental Laboratories Ltd.
336 - 6th Ave. North

QUEBEC — STE. THERISE

Lafond & Joly Dental Lab.
94 Blainville Quest

QUEBEC — GRANBY

Julien-Ste. Jean Dental Lab.
356 Rue Principale

QUEBEC — MONTREAL

Dentarium Laboratories
6997 Victoria Avenue

Nobident Dental Laboratory
3726 Jean-Talon West

Roger Sauve Dental Laboratory
5545 Beaubien Est

QUEBEC — QUEBEC CITY

G. Garneau Dental Lab.
386 Dorchester, Sud

NOBILIUM PRODUCTS OF CANADA, LIMITED 1366 BATHURST STREET, TORONTO 4, CANADA

COL. D. H. PROTHEROE IS LAST WEARER OF DFC STILL ON ACTIVE DUTY IN CANADIAN FORCES

A Canadian dentist, Col. D. H. (Hap) Protheroe, now stationed in Winnipeg, is the last wearer of the Distinguished Flying Cross (DFC) still on active service in the regular Canadian Forces.

He has 26 dentists working under him at the Winnipeg headquarters of the Canadian Forces' Air Command.

Col. Protheroe, 56, a native of Elnora, Alta., has been in the forces for 29 years. He retires in 1980.

Officially, 4,021 members of the Royal Canadian Air Force (RCAF) were awarded the white-and-purple ribboned cross during World War II. Uncounted other Canadians serving in the Royal Air Forces also received it. The only other active holder, Lt-Gen. Gordon Ockenden, retired in mid-October.

An apprentice pharmacist at the beginning of the war, Protheroe volunteered for air crew duties and joined the RAF 100 squadron in 1943. A Lancaster bomber navigator, he flew in 12 bombing raids over Germany then switched to the newly-formed 625 Squadron and added 18 more raids to his total.

His DFC citation mentions these missions but pinpoints a specific raid in which he navigated a crippled Lancaster bomber complete with crew back to base despite severe aircraft damage, and orders from the pilot for the six-man crew to bail out.

As he described it, "we dropped 16,000 feet in 90 seconds and I lost all my navigation aids."

Col. D. H. Protheroe

RADIATION PROTECTION BUREAU WILL SPONSOR SHORT COURSE IN ULTRASOUND

The Radiation Protection Bureau of the Department of National Health and Welfare will be sponsoring an intensive short course in ultrasound, May 17-18, 1979, in Ottawa. The course will be most useful to: medical and technical personnel involved in diagnostic, therapeutic, surgical and dental applications of ultrasound; health physicists, health inspectors, physiotherapists and paramedical professionals who want to gain a general knowledge about ultrasound, its applications and effects; and scientists of all disciplines professionally engaged in this field who want to expand and up-date their knowledge.

Lectures will be given by highly recognized scientists and experts in the ultrasound field, including: Professor Wesley Nyborg; Professor Floyd Dunn; Dr. Ted Lyons; Dr. Al Goldstein and Dr. Hal Stewart.

Topics presented will include ultrasound characteristics and biological effects, physical mechanisms, medical applications, quality assurance in imaging, instrumentation and calibration, safe use, regulatory controls and standards. A panel discussion will conclude the course.

The advance registration fee is $175.00 (which includes one night's accommodation, meals and course proceedings). After April 1, 1979, the registration fee is $195.00. Applications are limited to 150 persons. This course will be provided initially in English and later in French according to demand.

For further information contact:
M. H. Repacholi, Head,
Non-Ionizing Radiation Section,
Radiation Protection Bureau,
Environmental Health Centre,
Room 233,
Tunney's Pasture,
Ottawa, Ontario
K1A 0L2

"Nature's Way to Fight Tooth Decay"

The leaflet opposite, Nature's Way To Fight Tooth Decay, concerning fluoridation, is available at $24.00 per thousand copies, in English *or* French. Bilingual copies (English and French) are $36.00 per thousand copies. They are available from:

The Canadian Dental Association
Bureau of Public Information
1815 Alta Vista Drive
Ottawa, Ontario
K1G 3Y6

Please specify English, French or bilingual.

NOTE — Where communities are facing fluoridation campaigns, CDA will consider shared costs for the leaflet.

Facts Favour Fluoridation — A new six page pamphlet with more complete information to augment the fluoridation leaflet, will be available within two months. Please watch the Journal for details.

Nature's way to fight tooth decay

Fluoride is found . . .

in nearly all streams and other ground water. The amount depends on how much natural fluoride is present in the rocks and soil.

Water fluoridated by nature has prevented tooth decay throughout human history. We began to understand this about 50 years ago when scientists first observed its protective effect on teeth.

A tiny amount . . .

is all that's needed (about one part fluoride to a million parts of water) to make teeth much more resistant to decay for life, provided the fluoridated water is available to children while their teeth are forming. It will also help, to a lesser degree, teeth which are completely formed.

Nature . . .

doesn't always add just the right amount. Now we know how to adjust the fluoride content to the optimal amount, safely and accurately. This procedure is inexpensive and does not affect the taste or smell of water.

A striking resistance . . .

to tooth decay is found in people brought up in communities which have the right amount of fluoride, whether naturally occuring or scientifically introduced, in their supplies of drinking water. They have little decay and any that develops will progress slowly. This makes treatment a simple matter, especially for children.

Some 8,500,000 Canadians . . .

and millions more in many other technically advanced countries . . . benefit from fluoridation. Nature and scientific studies tell us exactly the proportion of fluoride to use to keep our teeth for a lifetime.

Is your community using this scientific and economical method to protect its dental health? The World Health Organization urges the adoption of fluoridation, wherever practicable, as a proven health measure.

Fluoridation is recommended by:

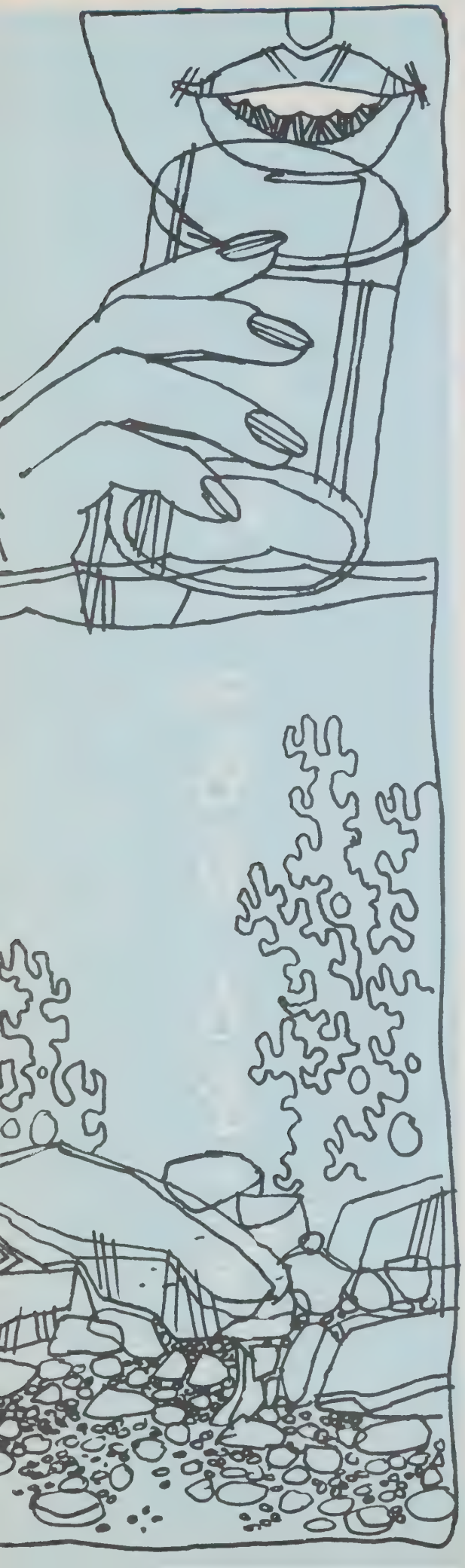
Canadian Dental Association
Canadian Medical Association
Canadian Public Health Association
Department of National Health and Welfare
World Health Organization,
And by the Department or Ministry responsible for health care in your province.

499

CANADIAN DENTAL ASSOCIATION
1815 Alta Vista Drive
OTTAWA, Ontario, Canada K1G 3Y6

11/78

Un moyen naturel de lutter contre la carie dentaire



On trouve du fluor . . .

dans presque tous les cours d'eau et les autres eaux de surface. teneur dépend de la quantité de fluor naturel présent dans le roc le sol.

L'eau fluorée trouvée dans la nature a contribué à prévenir la ca dentaire tout au long de l'histoire de l'homme. Nous avons commencé à comprendre ce fait important il y a environ 50 ans, lorsque des chercheurs ont observé son effet protecteur sur les dents.

Une infime partie . . .

c'est tout ce qu'il faut (environ une partie de fluor pour un millio de parties d'eau) pour rendre les dents beaucoup plus résistante la carie pour toute la vie, à condition que l'enfant absorbe de l'e fluorée pendant que ses dents se forment. L'eau fluorée est également bénéfique, mais à un degré moindre, aux dents déjà formées.

La nature . . .

ne fournit pas toujours la bonne proportion de fluor. Nous savo maintenant doser avec précision et de façon sûre la teneur optir de fluor. C'est un procédé peu coûteux, qui n'altère pas le goût l'odeur de l'eau.

Les collectivités qui disposent d'une quantité appropriée de fluo dans leur eau potable, que ce soit par un cadeau de la nature o par une méthode scientifique, démontrent une résistance remarquable à la carie dentaire. L'incidence des caries est faible lorsqu'elles apparaissent, leur progression est plus lente et les traitements en sont d'autant plus simples, surtout chez les enfa

Environ 8 500 000 Canadiens . . .

et des millions d'autres personnes dans plusieurs pays techniquement avancés . . . bénéficient de la fluoration. Des études scientifiques nous indiquent la proportion exacte de fluo nécessaire pour garder nos dents pendant toute la vie.

Votre collectivité utilise-t-elle cette méthode scientifique et économique pour protéger sa santé dentaire? L'Organisation mondiale de la santé incite fortement à adopter la fluoration, chaque fois que cela est possible, en tant que mesure de santé qui a fait ses preuves.

La fluoration est recommandée par les organismes suivants:

L'Association dentaire canadienne
L'Association médicale canadienne
L'Association canadienne de la santé publique
Le ministère de la santé nationale et du bien-être social
L'Organisation mondiale de la santé
Et le ministère responsable des soins de la santé dans votre province.

ASSOCIATION DENTAIRE CANADIENNE
1815 Alta Vista Drive
OTTAWA, Ontario, Canada K1G 3Y6

LE DR C. COVIT NOMMÉ AU POSTE DE PRÉSIDENT-DÉSIGNÉ DE L'ADC

Dr. C. Covit

Lors de la réunion du Bureau des gouverneurs tenue le 9 septembre 1978 à Winnipeg, le Dr Clyde Covit, dentiste de Montréal a été élu au poste de président-désigné. Le Dr C. Dexter de Halifax avait également posé sa candidature à ce poste.

La réunion du Bureau, qui a duré deux jours, était tenue préalablement au Congrès annuel de l'Association dentaire canadienne.

Né à Montréal, le Dr Covit a obtenu son B.Sc. en 1964 à l'Université Sir George Williams et en 1968, il obtenait à l'Université de Montréal son DDS.

Depuis 1976, le Dr Covit est un gouverneur de l'Association dentaire canadienne et, depuis 1977, il fait partie de son Conseil exécutif.

En 1976 et 1977, il a servi à titre de président du Conseil d'administration de l'Association des chirurgiens dentistes du Québec; en 1975, à titre de président de l'Association; de 1973 à 1977, il a siégé au sein de l'exécutif et depuis 1973, il est l'un des administrateurs de cette Association.

Mais ses responsabilités s'étendent bien au-delà de ces fonctions. Depuis 1975, il est directeur du Comité des assurances ACDQ qui s'occupe des plans de soins dentaires assurés; et depuis 1974, il siège au sein du comité qui négocie avec le gouvernement du Québec la question des soins dentaires donnés aux enfants ainsi qu'aux bénéficiaires de l'assistance sociale. A cet égard, il a été le principal conférencier à la réunion du Conseil des régimes de soins dentaires de l'American dental association, tenue les 26 et 27 septembre 1978 à Chicago. Sa conférences traitait du sujet suivant: ''La maîtrise de notre profession nous échappe-t-elle?'' ou ''Les plans de soins dentaires assurés et les cabinets dentaires''.

Membre de l'ADC et de l'ACDQ, le Dr Covit est également membre de l'Ordre des dentistes du Québec, de l'Association dentaire de l'Ontario, du Collège royal des chirurgiens dentistes de l'Ontario, de la Fédération dentaire internationale, de l'Académie Pierre Fauchard, de la Mount Royal Dental Society – Association Alpha Omega ainsi que de la Société dentaire de Montréal.

Le Dr Covit et son épouse, Sharon ont trois enfants, Brandee, Hayley et Barrie.

"Le moyen naturel de combattre le carie"

Le feuillet ci-contre, intitulé ''Le moyen naturel de combattre la carie'' et portant sur la fluoration de l'eau est disponible à raison de $24.00 les mille exemplaires, en anglais *ou* en français. Les exemplaires bilingues (anglais et français) se vendent $36.00 le mille. On peut les commander à l'adresse suivante:

L'Association Dentaire Canadienne
Bureau de l'information publique
1815, promenade Alta Vista
Ottawa, Ontario
K1G 3Y6

Prière de préciser si vous désirez la version française, anglaise ou bilingue.

REMARQUE—L'ADC envisagera le partage des frais pour le feuillet dans le cas des localités se proposant d'organiser des campagnes en faveur de la fluoration de l'eau.

Un nouveau dépliant de six pages, intitulé ''Les faits parlent en faveur de la fluoration'', sera disponible d'ici deux mois. Il exposera des renseignements plus détaillés sur la fluoration afin de compléter le feuillet susmentionné. Prière de consulter le Journal pour en avoir une description plus détaillée.

Deux nouveaux locataires au siège social de l'ADC

Deux nouveaux locataires viennent de se fixer au siège social de l'ADC, 1815 Alta Vista Drive: il s'agit de l'Association pharmaceutique canadienne, qui a installé le directeur exécutif et sa secrétaire dans le bureau sud-est au 2ème étage, ainsi que de la Compagnie Alcron Investments Limited, qui occupe 3,000 pieds carrés au côté sud-ouest au deuxième étage. Il ne reste maintenant que 3,000 pieds carrés à louer sur les 12,000 pieds carrés d'origine.

LA REUNION DU BUREAU DES GOUVERNEURS DE L'ADC, 1978

Conseil exécutif

Pour le mandat 1978-79, le Conseil exécutif de l'Association dentaire canadienne comprend les membres suivants: Dr R. L. Moran, Toronto, président; Dr D. L. Rife, Toronto, président sortant; Dr C. Covit, Montréal, président désigné; les Drs A. Shinoff, Winnipeg et G. E. Utas, Grande Prairie, titulaires; et trois membres nouvellement élus pour un mandat de deux ans: Dr R. Evans, Picton; Dr W. Froese, Chilliwack et Dr Williams, Moncton. Le Dr M. Charendoff était le quatrième membre qui avait posé sa candidature. La vacance survenue suite à l'élection, à mi-mandat, du Dr C. Covit au poste de président désigné, sera comblée par nomination présidentielle. Le Dr Covit a vaincu le Dr C. Dexter de Halifax, dont le mandat au sein du Conseil expire cette année.

Le Dr N. A. Mancini de Hamilton est président du Bureau et le comité d'administration comprend les Drs Moran, Rife et Covit.

Le Dr G. Anthony de St. John's a été nommé au Conseil sur la constitution et les règlements afin qu'il y ait un représentant des provinces atlantiques et le Dr J. H. Main de Toronto a été élu au Conseil des services hospitaliers car seul un membre unique de l'Ontario est autorisé à servir au sein du Conseil. Le Dr R. Gray de Medicine Hat a été élu à vote ouvert au Conseil des candidatures.

Affiliation

L'augmentation des cotisations de l'Association dentaire canadienne entrera en vigueur le 1er janvier 1980.

Bien que l'accord n'ait pas été unanime, le Bureau a approuvé la cotisation annuelle de $125.00 par an pour les membres actifs. La cotisation des membres associés passera de $35.00 à $50.00, la cotisation des étudiants de $5.00 à $10.00 mais, pour l'instant, la cotisation des associations professionnelles restera la même.

Bien qu'il ait été convenu qu'il n'y aurait pas de réduction de cotisation pour les dentistes salariés ou le personnel militaire, ni une catégorie spéciale de membres, le Conseil exécutif a renvoyé cette question au Comité d'admission afin d'obtenir un exposé de position.

Certificats de mérite

En récompense des services extraordinaires qu'ils ont rendus à l'ADC, le Dr D. L. Rife, président de l'Association a présenté des certificats de mérite aux personnes suivantes: Dr John W. Neilson, Winnipeg, président du Conseil des fiduciaires du FCED; Dr W. H. Feasby, London, président du Conseil sur l'enseignement et le Dr R. G. Dickson, Drumheller, président du Conseil de la santé.

Taxation

Suite à une réunion parrainée cet automne par l'ADC avec les représentants des associations des médecins, des hommes de loi et des comptables, une présentation sera faite conjointement au Ministère de la justice afin d'obtenir, en plus de l'exemption des frais de scolarité, une autre exemption d'impôts pour les frais de formation.

Bien que le Ministère du revenu semblait auparavant compréhensif en ce qui concerne la position du Comité de taxation de l'ADC, les Ministères de la justice et des finances ont porté une forte objection à toute modification du Bulletin interprétatif IT-357 afin d'éviter un abus possible. En vue de surmonter ce problème, le comité, secondé par ses consultants, prépare actuellement des directives de contrôle destinées à la profession dentaire, qui seront incorporées à celles s'appliquant aux médecins, aux hommes de loi et aux comptables afin de faire une soumission d'ensemble au Ministère de la justice, invitant ce dernier à modifier la loi des impôts sur le revenu, afin qu'il soit possible de déduire les frais de formation.

Année internationale de l'enfance

L'Organisation mondiale de la santé désigne 1979 comme étant l'Année internationale de l'enfance et dans cette optique, le thème de la prochaine assemblée annuelle de l'ADC se rapportera aux enfants.

Affaires des étudiants

L'affiliation des étudiants à l'ADC comporte aujourd'hui presque 75 pour cent (74.39%) du corps étudiant. Ce chiffre est une indication de l'enthousiasme du Conseil des affaires des étudiants ainsi que du succès qu'ont remporté les réceptions de l'ADC "Bienvenue à la profession", tenues dans de nombreuses villes du Canada.

Le gouverneur n'étant élu que pour un mandat d'une année, le Bureau des gouverneurs a décidé que l'étudiant gouverneur désigné serait invité à participer à titre d'observateur à toutes les futures assemblées du Bureau afin qu'il puisse acquérir l'expérience voulue.

Le Conseil des affaires des étudiants de l'ADC a été invité à envoyer, à titre d'observateur, un représentant au Conseil national des examinateurs dentaires et, par ailleurs, le Conseil des affaires des étudiants invitera un représentant du CNED à assister, par invitation, à ses propres réunions.

Siège social de l'ADC

A partir du 1er janvier 1979, un service d'ordinateur sera mis sur pied à Ottawa, relié aux entreprises Systems Dimensions Ltd; ce service facilitera la gestion de l'Association et permettra d'exercer un plus grand contrôle sur la dissémination d'information.

Finalement, pour bien affirmer le déménagement de Toronto à Ottawa, le panneau bilingue Association dentaire canadienne/Canadian Dental Association a été exécuté et installé à l'avant de l'immeuble de l'Association, au 1815 Alta Vista Drive.

LE DR ROD MORAN, PRÉSIDENT DE L'ADC

Dr. R. L. Moran

Le 11 septembre 1978, lors du Congrès national de l'Association dentaire canadienne, le Dr R. L. Moran, directeur des soins dentaires au Centre des enfants infirmes de l'Ontario, devenait président de l'Association. Il succède au Dr D. L. Rife de Toronto.

Le Dr Moran est professeur agrégé à la faculté de médecine dentaire de l'Université de Toronto, division de Pédodontie; clinicien-adjoint à l'Hôpital des enfants malades et consultant en pédodontie à l'Hôpital North York General, Toronto.

Né à Port Arthur, Ontario, le Dr Moran obtint en 1961 son diplôme de DDS à l'Université de Toronto. Suivant un stage de quatre ans au Service dentaire de l'armée royale canadienne, de 1961 à 1965, il a continué ses études post-universitaires à l'Université de Toronto et a obtenu en 1967 son diplôme en pédodontie; la même année, il obtenait son diplôme de spécialiste en pédodontie au Collège royal des chirurgiens dentistes de l'Ontario.

Membre (Fellow) du Collège royal des dentistes du Canada, le Dr Moran a joué un rôle actif au sein de nombreuses associations, académies et sociétés dentaires. Membre de longue date de l'Association dentaire canadienne et de l'Association dentaire de l'Ontario, il a servi à titre de président de l'ADO en 1974 et de membre exécutif de l'ADC depuis 1975. Il fait également partie de l'American Association of Dentistry for the Handicapped, de l'Académie canadienne de pédodontie et de la Société de pédodontie de l'Ontario, du Collège royal des dentistes du Canada, de la Société canadienne de dentisterie infantile et de la 'Omicron Kappa Upsilon Honour Dental Society'. Le Dr Moran, président fondateur des services de la santé des étudiants, division dentaire, Projet Alexandra Park, Université de Toronto, siège au sein des organismes suivants: comité médical consultatif, Centre des enfants infirmes de l'Ontario; comité consultatif professionnel de la Société des enfants infirmes de l'Ontario; comité d'étude des soins dentaires donnés aux personnes handicapées et déficientes; et le groupe d'étude du gouvernement de l'Ontario sur les enfants handicapés.

Il a présenté de nombreuses communications traitant des soins dentaires donnés aux enfants ainsi qu'aux personnes handicapées.

Le Dr Moran et son épouse, Delores, ont trois enfants, Roddy, David et Laura.

UN NOUVEAU PRÉSIDENT DU CONSEIL POUR LE FCED

Lors de la récente réunion du Bureau des gouverneurs de l'ADC tenue à Winnipeg, le Dr James A. Guest de London, Ontario a été nommé président du Conseil des fiduciaires du Fonds canadien pour l'enseignement dentaire. Il succède au Dr John W. Neilson de Winnipeg, qui a démissionné après avoir servi à titre de président ces trois dernières années. Le Dr Neilson continuera à servir à titre de fiduciaire jusqu'à l'achèvement de son mandat en 1979.

Membre du Conseil du FCED depuis 1974, le Dr Guest a été élu à l'unanimité par ses confrères fiduciaires pour prendre la succession du Dr Neilson. Depuis une trentaine d'années, il dirige un cabinet de généraliste à London et il enseigne également à temps partiel à la section de dentisterie de restauration depuis les débuts de la Faculté dentaire de l'Université de Western Ontario en 1966.

Président de la London Dental Society en 1953, le Dr Guest a ensuite été membre du Conseil des gouverneurs de l'Association dentaire de l'Ontario pendant six ans et membre de son Conseil exécutif pendant quatre ans.

Les autres nominations effectuées au sein du Conseil du FCED sont les suivantes: le Dr Robert Dupont de Montréal succède au Dr Henri Brouillet (également de Montréal), qui a démissionné après avoir servi avec distinction pendant six ans. Le Dr Dupont participe activement depuis de nombreuses années à la médecine dentaire organisée; il est actuellement membre du Conseil d'administration de l'Association des chirurgiens dentistes du Québec.

Monsieur Stanley O. Tebbutt, vice-président de la Compagnie Dentsply Canada Ltée a été réélu au poste de vice-président du FCED et Monsieur Alex S. Currie, président de Denco, à celui de fiduciaire.

L'ASSOCIATION DENTAIRE CANADIENNE CONFÈRE LE TITRE DE "MEMBRE HONORAIRE"

Ancien doyen de la faculté dentaire de l'Université d'Alberta, président-sortant de l'Association dentaire canadienne et sommité de réputation internationale, le Dr H. R. MacLean d'Edmonton est devenu ''membre honoraire'' de l'Association dentaire canadienne.

Cette présentation a été faite de 11 septembre 1978 lors du Congrès annuel de l'Association à Winnipeg, par le président de l'ADC, le Dr D. L. Rife.

Le Dr MacLean a faite partie du personnel de l'Université d'Alberta de 1935 à 1970 et préalablement, a enseigné la dentisterie de restauration; il était également chef de la section du diagnostic buccal. Il a faite partie du personnel de l'Hôpital de l'Université d'Alberta de 1939 à 1970.

Né à Finch, Ontario, le Dr MacLean a fait ses études universitaires à l'Université de Saskatchewan, a obtenu son diplôme de DDS en 1928 à l'Université d'Alberta et a exercé sa profession à Edmonton jusqu'en 1958.

Le Dr MacLean est membre (fellow) de l'American College of Dentists, du Collège internationale des dentistes ainsi que membre du Collège royal des dentistes du Canada.

A titre de membre du comité d'organisation du Conseil national des examinateurs dentaires, le Dr MacLean a siégé au sein de ce Conseil pendant quinze ans et en a été le président pour un mandat d'un an, en 1966. Il a, de plus, siégé au Comité d'organisation de la recherche dentaire de l'ADC pour le Conseil national de recherches et par la suite, il a collaboré pendant huit ans au comité de recherches du CNR.

Au cours de sa longue association avec l'ADC, le Dr MacLean a également servi à titre de président du Conseil des services auxiliaires, à titre de gouverneur de l'Alberta, siégé à l'exécutif, Conseil d'administration, à titre de président en 1969-1970 et dernièrement, à titre de président du Conseil sur la constitution et les règlements.

A l'échelle internationale, il a été membre, consultant et plusieurs fois délégué canadien à la Fédération dentaire internationale; à ce titre il a assisté à des réunions tenues en Bulgarie, au Mexique, en Australie et en Grande-Bretagne. Il a effectué des sondages dans les Caraibes, en Indonésie, à Papua-Nouvelle Guinée et il a travaillé au Brésil.

Le Dr MacLean est membre à vie d'une Académie canadienne et de deux Académies américaines, de l'Association dentaire de l'Alberta dont il a été pendant de longues années le président et l'an dernier, il obtenait le titre de ''Doctor of Laws (Honoris Causa)'' à l'Université d'Alberta.

De plus, le Dr MacLean a considérablement contribué au développement de la profession dentaire grâce à ses nombreuses communications, articles, cliniques et conférences.

Depuis toujours un grand athlète, le Dr MacLean a une réputation considérable à titre d'alpiniste; deux lacs dans les montagnes Rocheuses portent son nom, le Petit Lac Hector et le Grand Lac Hector.

L'ADC NOMME UN DIRECTEUR À L'AGRÉGATION

L'ADC vient de nommer le Dr J. V. P. Chatwin, d'Ottawa, au poste de directeur à l'agrégation de l'Association dentaire canadienne; il est entré en fonctions au début du mois d'août 1978.

A titre de directeur à l'agrégation (poste à plein temps), le Dr Chatwin est chargé d'évaluer les programmes destinés aux étudiants dentaires, les programmes de spécialisation, ainsi que les programmes destinées aux hygiénistes et aux assistantes dentaires. Le Dr Chatwin s'adressera à des experts indépendants pour faire évaluer les divers programmes et pour être sûr qu'ils sont à la hauteur des normes établies par l'ADC et les organismes provinciaux d'octroi des permis d'exercer. Le Dr Chatwin s'est installé au siège social de l'ADC à Ottawa.

Préalablement, il occupait depuis 1974 le poste de directeur du programme des Sciences de la santé dentaire au Collège Algonquin à Ottawa. A ce titre, il était chargé de l'organisation et de l'administration d'un programme d'hygiène dentaire mis sur pied au sein du Collège.

Diplômé de l'Université d'Alberta à Edmonton, il a commencé en 1951 sa carrière à titre de dentiste militaire dans les Forces armées canadiennes, à Camp Borden, Ontario. A l'exception d'une période de trois ans, de 1954-1957, alors qu'il avait un cabinet privé, le Dr Chatwin a continué à servir avec les Forces armées jusqu'en 1974. Il fut affecté en dernier lieu au poste de commandant de l'Unité dentaire No 1, Ottawa, où il était chargé des soins dentaires données aux membres des Forces armées de la région d'Ottawa. Il était également chef des services dentaires du Centre médical de la défense nationale.

Outre ses affiliations à l'Association dentaire canadienne et à l'Association dentaire de l'Ontario, le Dr Chatwin est membre de la Société des dentistes d'Ottawa, ancien président de la Société canadienne des dentistes de la Santé publique et membre (Fellow) du Collège international des dentistes ainsi que du Collège royal des dentistes.

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HISTORY AND CURRENT STATUS OF ACCREDITATION IN CANADA

Accreditation has been defined, "... as a process, an external review of an educational program designed to maintain pre-determined national standards and to ensure uniform, preferably portable qualifications for graduates".[1]

This process is the result of a long evolutionary development from the apprenticeships training system, through a period of proprietary school training to dental schools which today are an integral part of the university community.

From the beginning, Canadian dentists have experienced a close relationship with dentists and dentistry in the United States. In reality dentistry in both countries has developed along very similar lines. As the profession developed in both countries the more responsible members became concerned with attaining societal recognition of dentistry as a profession. Licensure and the opening of the first dental school, both of which occurred in the U.S. in 1840-41, were significant steps in the drive against preceptorship training and the proprietary school.[2] Licensing powers were enacted in Ontario in 1868 and quickly followed in Quebec.

A dental school was established in Toronto in 1875 but compulsory indentureship continued until 1912 when it was abolished in Ontario. It gradually disappeared over the next decade in other provinces.

The process moved quickly in the following years. Educational standards were approved by the American Dental Association in 1941-42 and the first site-visits of dental schools took place that year. On the American scene accreditation was initially limited to dental schools but with the growth of the profession it expanded to include all areas of dental education.

The American scene is still changing; while the ADA Council on Education continues to function as a policy recommending body, responsibility for the accreditation of dental and other related educational programs in the auxiliary field has been transferred to a Commission on Accreditation which includes public representation in its membership.

Canadian dental history followed the same evolutionary pattern as dentistry in the U.S. An Education Committee, reporting to the annual meetings of the Canadian Dental Association, was reconstituted as the Council on Dental Education in 1945. From this Council the accreditation process was developed as we know it today.

The first recorded survey of a dental school took place in 1931. In a soon to be published history of the McGill Dental School, Rodgers[3] quotes an article by the acting dean of the dental school published in The McGill News December 1931. Dean Walsh wrote: "During the 1930-31 session, at the request of the Principal, a survey of the Faculty of Dentistry was made by an appointed committee"; and later in the article "... our School was given a high rating by the Board of Dental Education of New York State".

The first formal approach to accreditation occurred in 1950 when the CDA Council on Dental Education appointed a survey committee to examine and report on the dental schools in Canada.

There were five dental schools at that time, located at Alberta, Nova Scotia, Ontario, and two in Quebec. The survey team, consisting of A.C. Lewis, dean of Ontario College of Education, A.L. Walsh, retired dean of McGill, and Harvey W. Reid of Toronto, adapted the ADA plan for use in the Canadian survey.

On completion of the final series of site visits in 1956 (each school was visited twice), and the issuance of confidential reports to the universities and the deans, the committee consolidated their reports and recommended approval of the five schools.

The mechanics of the accreditation procedure has been stream-lined since those early days. The process and the documentation has been standardized so that real progress has been evidenced in the last four years during the term of Dr. M. Rogers as Accreditation Co-ordinator for CDA.

The Council on Education is ultimately responsible for the status of accreditation accorded to particular programs. Its evaluation is based on minimum standards which the Council has developed with the approval of the Board of Governors, who must also ratify any amendments.

The prime purpose of the Council on Education in conducting evaluation surveys is to assist, stimulate and recommend methods and procedures to enable the sponsoring institutions to improve the effectiveness of their programs. It is not the Council's intention to impose a system of regimentation which would lead to the standardization of teaching programs in Canadian dental schools. Within the Council, the Committee on Survey Policy is the working group which recommends to Council on all matters relating to accreditation. The Committee on Survey Policy is structured to include representatives from the Association of Canadian Faculties of Dentistry, the National Dental Examining Board of Canada, the Royal College of Dentists of Canada, and the Provincial Dental Registrars. There is at present no "consumer" representation. For the past four years, members of the appro-

priate specialties from the American Dental Association have been members of each CDA Survey Team where specialty programs are being evaluated.

The accreditation process is remarkably uniform across all the health disciplines. The CDA process involves the following sequence of events:

1. A request is made by a new program, or an institution requests a reassessment at the time stipulated by the Council on Education following its last accreditation visit.
2. Survey teams are selected by the Survey Policy Committee from names of qualified appointees proposed by educational bodies, licensing bodies, and specialty groups. Teams consist of a chairman and two members. One member concerns himself with basic and the other member with dental sciences. With specialty programs the dental sciences members is an ADA Board specialist for the specialty being evaluated.
3. Extensive pre-survey material is prepared by the institution involved, sent to CDA, and in turn is sent to survey team members well in advance of the site-visit.
4. Site-visits range in duration from two days for dental assisting programs to four days for the dental undergraduate programs. Dental hygiene and specialty programs require three days.
5. The survey team report is sent to the institution concerned for a review to ensure that all pertinent logistics and statistics have been incorporated.
6. The Survey Policy Committee reviews the report, makes its recommendation and passes it to the Council on Education.

If it is the Survey Policy Committee's decision not to recommend Approval the institution is advised before Council meets and has the right to request reconsideration.

The Council on Education, with wide experience and broad representation, considers the matter, and if it does not approve the program the institution has the right of appeal.

The ADA has a standing appeal board. In Canada a special board of three is struck for each appeal. The Council on Education and the institution concerned each appoint a member. These two appoint a third

DENTAL AND DENTAL AUXILIARY PROGRAMS ACCREDITED BY THE CANADIAN DENTAL ASSOCIATION

DENTAL UNDERGRADUATE PROGRAMS

University of British Columbia
University of Alberta
University of Saskatchewan
University of Manitoba
University of Western Ontario
University of Toronto
Université de Montréal
McGill University
Université Laval
Dalhousie University

DENTAL SPECIALTY PROGRAMS

Oral Pathology
University of Toronto
University of Western Ontario
University of Manitoba

Oral Surgery
Dalhousie University
McGill University
University of Toronto
University of Manitoba

Orthodontics
Université de Montréal
University of Toronto
University of Western Ontario
University of Manitoba
University of Alberta

Paedodontics
Université de Montréal
University of Toronto

Periodontics
University of Toronto
University of Manitoba
University of British Columbia
Dalhousie University

Prosthodontics
McGill University

Dental Hygiene
University of British Columbia
University of Alberta
University of Manitoba
Université de Montréal
Dalhousie University
Canadian Forces, Borden
Algonquin College, Ottawa
Collège de Maisonneuve, Montréal
John Abbott College, Montreal

Dental Assisting
Algonquin College, Ottawa
Canadore College, North Bay, Ont.
Canadian Forces, Borden, Ont.
Confederation College, Thunder Bay, Ont.
Fanshawe College, London, Ont.
Georgian Collage, Orillia, Ont.
George Brown College, Toronto, Ont.
Holland College, Charlottetown, P.E.I.
Kelsey Institute, Saskatchewan
Keewatin College, The Pas, Man.
Malaspina College (B.C. Vocational)
N.S.I.T. Halifax, N.S.
N.A.I.T., Edmonton, Alberta
Niagara College, Welland, Ont.
Okanagan College, Kelowna, B.C.
Red River College, Winnipeg, Man.
S.A.I.T. Calgary, Alberta
St. Clair College, Windsor, Ont.
Wascana Institute, Regina

member who becomes chairman of the Appeal Board.

By establishing high minimum standards for accreditation with a built-in review and appeal mechanism, the profession ensures the continued quality of members of the dental health team.

The process provides benefits to both the corporate bodies and the profession at large. Accreditation providing reciprocity is essential to mobility, as well as the benefits that flow from it in the licensing process. The N.D.E.B. recognizes this process and has not required written examinations for graduates of approved Canadian schools since 1971.

The Canadian system faces a number of questions that will require answers. As dental auxiliary competencies are expanded in some dental jurisdictions should the accreditation mechanism be expanded?

Public Administrations are continuing to demand lay representation on boards. Additionally, the establishment of government accreditation programs is a possibility, now that the federal and provincial governments are looking at "health services" as an administrative grouping, for purposes of an orderly approach to manpower planning. This could affect CDA-ADA program reciprocity.

As Feasby[4] pointed out in a recent editorial, "Organized dental education . . . is the professional womb or matrix of dentistry." It would seem appropriate then that the national professional body, the CDA, representing as it does, organized dentistry, should be the group that provides the sponsorship of accreditation.

A fair, equitable and effective accreditation process has been developed in Canada through the co-operative efforts, over many years, of the dental schools and the various organizations and agencies of dentistry which have a professional and legal concern for the quality of dental education.

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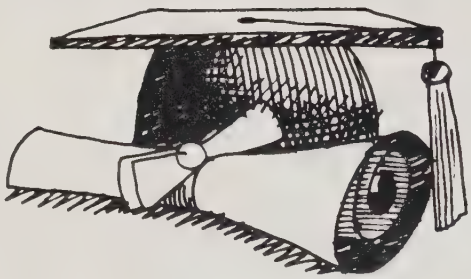

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1 Woods, D. Accreditation of allied Health education programs. II. Defining objectives. Canadian Medical Association Journal 115, 448-9, Sept. 1976.

2 Santangelo, M. V. A review of dental school accreditation: development and current philosophy. J. Dent. Educ. 41 (5): 233-8, May 77.

3 Rogers, M. A. Personal Communication, Sept. 29, 1978.

4 The professional matrix. Edit. Canad. Dent. A.J. 44:4 Apr. 1978.

HOSPITAL DENTAL SERVICES AND INTERNSHIP PROGRAMS ACCREDITED BY THE CANADIAN DENTAL ASSOCIATION

NEWFOUNDLAND:	
Dr. Chas. A. Janeway Child Health Centre, St. John's Newfoundland.	Dental Services
NOVA SCOTIA:	
Izaak Walton Killam Hospital Halifax, N.S.	Dental Services
Victoria General Hospital Halifax, N.S.	Dental Services
QUEBEC:	
Centre Hospitalier Notre Dame, Montreal, P.Q.	Dental Services & Rotating Internship
Centre Hospitalier St. Vincent de Paul, Sherbrooke, P.Q.	Dental Services & Rotating Internship
Centre Hospitalier de l'Enfant Jesus, Quebec, P.Q.	Dental Services (Restricted to Oral & Maxillo Facial Surgery)
Montreal General Hospital, Montreal	Dental Services & Rotating Internship
Jewish General Hospital Montreal	Dental Services & Rotating Internship
Montreal Children's Hospital Montreal, P.Q.	Dental Services & Paedodontic Internship
Royal Victoria Hospital Montreal, P.Q.	Dental Services & Rotating Internship
St. Mary's Hospital, Montreal, P.Q.	Dental Services & Rotating Internship
Youville Hospital Sherbrooke, P.Q.	Dental Services
ONTARIO:	
Doctors Hospital, Toronto, Ont.	Dental Services
Hamilton Civic Hospital, Hamilton, Ont.	Dental Services
Hospital for Sick Children Toronto, Ont.	Dental Services
Mount Sinai Hospital, Toronto, Ontario.	Dental Services & Internship
Ottawa Civic Hospital, Ottawa, Ont.	Dental Services
Scarborough General Hospital, Scarborough, Ont.	Dental Services
St. Joseph's Hospital, London, Ontario.	Dental Services & Rotating Internship
Sunnybrook Medical Centre, Toronto, Ont.	Dental Services
Toronto General Hospital, Toronto, Ont.	Dental Services & Rotating Internship
Toronto Western Hospital, Toronto, Ont.	Dental Services & Rotating Internship
University Hospital, London, Ont.	Dental Services & Rotating Internship
Victoria Hospital, London, Ontario.	Dental Services
MANITOBA:	
Deer Lodge Hospital, Winnipeg, Man.	Dental Services
Winnipeg Health Sciences Centre, Winnipeg, Man.	Dental Services, Paedodontic & Rotating Internship
SASKATCHEWAN:	
University Hospital, Saskatoon, Sask.	Dental Services & Rotating Internship
ALBERTA:	
University of Alberta Hospital, Edmonton, Alberta	Dental Services & Rotating Internship
BRITISH COLUMBIA:	
Children's Hospital, Vancouver, B.C.	Dental Services
Victoria General Hospital, Victoria, B.C.	Dental Services

IMMUNOLOGICAL PHENOMENA IN ENDODONTIC DISEASE

Calvin D. Torneck, DDS, MS, FRCD(C)
Toronto

There is increasing evidence to suggest that immunological phenomena or host resistance plays a significant role in diseases of the dental pulp and the periapical tissues. While such evidence has not as yet resulted in changes in the type or form of clinical treatment rendered for these diseases, it has offered an explanation for some of the clinical symptoms often noted in association with them. The purpose of this article is to review some of the current principles of immunology and relate them to clinical endodontic situations in a manner that is meaningful to the practising dentist.

Basic immunological responses

Immunological responses arise from the lymphoid and reticulo-endothelial tissues of the body. In these areas there are immature and mature lymphocytes. The latter are capable of responding to a great variety of antigens (stimulants) and hence are termed immunocompetent. Two types of mature lymphocytes have been identified: the T cell which gives rise to a number of substances called lymphokines, whose properties are summarized in Table 1, and the B cells which have the ability to differentiate into plasma cells (antibody producing cells) whose properties are summarized in Table 2. The T (Thymus) cells are principally responsible for what is termed cellular immunity, and the B (Bursa) cells are principally responsible for what is termed humoral immunity. However, antigens will frequently evoke a response where there is co-operation between these two types of cells, so that a simple type of lymphocyte response is not often seen.[1]

The antibodies (immunoglobins) produced by the plasma cells can be divided into five major classes which differ structurally and biologically, i.e. in the way they act, they are IgG, IgA, IgM, IgD and IgE. These in turn can be divided into numerous sub-classes. IgG is the predominant antibody of the group, and constitutes approximately 75 per cent of the antibody titre of serum. IgA constitutes less than 15 per cent of the serum total, but is the predominant antibody present in body secretions such as saliva. IgM constitutes less than 10 per cent of the total, and is most often the first antibody to interact with an antigen. IgD and IgE appear in minimal concentrations, with the former having an unknown function and the latter being associated with anaphylactic reactions. The antibodies can function, in a variety of ways, to neutralize or eliminate an antigen. For example, some antibodies can cause lysis of a bacterium or they can interact with the bacterial cell wall to promote its phagocytosis and destruction by other body cells. Other antibodies can neutralize bacterial toxins and prevent them from inducing damage. Each of the antibodies in each of the classes is thought to be relatively specific, i.e. effective against a particular antigen.

Antibody reactions with antigen can also precipitate a reaction within the complement system of the blood. Complement is composed of a series of protein substances present in the serum which have been shown to play a role in the defence mechanism of the body. They have been shown to be chemotactic for polymorphonuclear leukocytes, induce degranulation of mast cells, induce lysis of certain gram-negative bacteria, and potentiate the phagocytosis of living and dead substances, to name only a few (Table 3). The complement system (labelled C1 through C9) can be activated immunologically in one of two ways: the classical way, either through the reaction of IgG or IgM with antigen or the presence of aggregated immunoglobulins, and the alternate or properdin way (named so because it is activated indirectly through the protein properdin) by portions of complement C3 released through the classical pathway or by IgA, IgG and IgE. Certain non-immunological agents such as cobra venom and zymosam, and microbial polysaccharides, such as endotoxin which is produced by certain gram negative bacteria, can also activate the alternate pathway. Endotoxin is of particular significance to dentists because it is produced by the gram negative bacteria which are prevalent in both endodontic and periodontal disease.

Immune phenomena are basically protective mechanisms elicited by the host in response to the presence of foreign substances, such as a micro-organism or its by-products.

Substances released by T. lymphocytes (lymphokines) produce the following* Table 1

1. Macrophage migration inhibition (MIF)
2. Macrophage activation (MAF)
3. Macrophage arming
4. Mononuclear cell chemotaxis
5. Skin reaction
6. Lymphocyte mitosis
7. Cytostasis
8. Inhibition of virus multiplication (interferon)
9. Cell lysis (fibroblasts)
10. Osteoclast activation (OAF)
11. Other factors yet to be identified

*modified from Essential Immunology. Ed 3. I. Roit, Blackwell Scientific Publications, London 1977.

Biological effects produced by complement* Table 3

1. Cytolysis (bacteriolysis in gram negative organisms)	C1-9
2. Immune adherence (opsonin for bacteria to facilitate phagocytosis)	C3b
3. Promotes phagocytosis	C3, C5
4. Histamine release from mast cells	C3a, C5a
5. Increases vascular permeability	C3a, C5a
6. Chemotaxis for leukocytes (attracts pmn's)	C3a, C5a, C5, 6, 7
7. Degranulation of leukocytes (lysosome release)	C5a
8. Participates in blood clotting	C6
9. Promotes clot lysis	C3, C4
10. Inactivates endotoxins (from gram negative bacteria)	C5, C6

*modified from Nisengard, R. J. Role of immunology in periodontal disease. J Periodont 48:505, 1977.

Characteristics of antibodies in humans* Table 2

	IgG	IgA	IgM	IgD	IgE
Major characteristics	Most abundant in serum and body fluids, especially extravascular where it combats micro-organisms and their toxins	Major Ig in sereous secretions (saliva)	Effective agglutinator produced early in immune response — first line of defence in bacteraemia	On lymphocyte surface	Participates in parasitic diseases and atopic allergy (hay fever)
Fixes complement:					
Classical	++	−	+++	−	−
Alternate	−	+	−	−	−
Crosses placenta	+	−	−	−	−
Fixes to mast cells	−	−	−	−	+
Cytophilic binding to macrophages and pmn's	+	−	−	−	−

*modified from Essential Immunology. Ed. 3. I. Roit, Blackwell Scientific Publications, London 1977.

They can, however, also be responsible for injury to the host during an attempt to neutralize or eliminate the irritant (stimulant or antigen). There are times when the immunological reactions can be more harmful to the host than the condition or disease that initiates them. This is particularly true in situations where the host has had a previous exposure to the irritant or where continuous exposure to an irritant is occurring. Such individuals develop what are called hypersensitive reactions to the stimulant, and the condition is referred to as a state of hypersensitivity.

Four types of hypersensitive reactions have been identified:

1. *Immediate or anaphylactic hypersensitivity* — this reaction is dependent upon the presence of a particular type of antibody called reagin which is IgE, and which fixes to mast cells and basophilic leukocytes. Repeated contact with an irritant can cause a release of the granules present in these cells (histamine, bradykinin and prostaglandin) which can in turn influence the release of other substances such as SRS-A (slow reacting substance of anaphylaxis), a collagenase promoting factor and an eosinophilic chemotactic factor, which give rise to the clinical state of anaphylaxis.
2. *Antibody-dependent cytotoxic hypersensitivity* — is mediated by IgG and IgM with or without complement

activation. Cell death, as the name implies occurs when antibody or complement factors come in contact with a cell or cell component that has been rendered antigenic by the adherence of an antigen on its surface.

3. *Immune complex – mediated hypersensitivity* — results from the accumulation of antigen-antibody complexes in or about small blood vessels and which is typified by the arthus reaction seen in situations of antibody excess and the serum sickness type of reaction which is seen in antigen excess. These reactions are mediated principally by IgG and IgM, which activate the complement system and hence precipitate a series of events that are associated with polymorphonuclear leukocyte infiltration and lysosome release. These include local necrosis, vascular destruction and edema. Immune complexes can also bind to platelets, causing a release of histamine-like substances which can in turn precipitate a series of anaphylactic type of events.

4. *Delayed or cell-mediated hypersensitivity* — is mediated by cells and not by circulating antibody and therefore, unlike the other types of hypersensitivity reactions, cannot be transferred from one individual to another through serum. This is the form of hypersensitivity encountered when there is host contact with bacteria, and fungi, or when host tissue is altered by drugs or other foreign substances or when grafts from one individual are rejected. The principal cell involved in delayed hypersensitivity is the T lymphocyte, however, B lymphocytes and macrophages all interact to create the typical mononuclear cell response seen in this type of reaction.

Stimulatory hypersensitivity has also been recognized but it relates principally to the stimulation of certain body cells by auto antibodies and has no direct dental significance.

Caries pulpitis

Inflammation of the dental pulp is a common sequella to the presence of dental caries. While this inflammation is more common in profound (deep) caries, it has also been reported as occurring early in the process at a time when the enamel and superficial dentin are carious. The changes seen in the dental pulp in association with caries are primarily mononuclear (lymphocytic)[2,3] in nature and suggest that a delayed type of hypersensitivity reaction may be present. Since these changes occur prior to the actual invasion of the pulp, it is thought that the response elicited in the pulp is mediated (initiated) by substances produced by the micro-organisms in the carious lesion i.e. metabolites or endotoxins, or by substances that arise from the micro-organisms subsequent to their death, i.e. portions of their cell wall, which diffuse through the dentinal tubules and gain access to the dental pulp. The suggestion of a tubular pathway is supported by the fact that the inflammatory changes noted in the dental pulp are seen principally in the area of the tubules that are associated with the base of the carious lesion. While macrophages, lymphocytes and antibody producing plasma cells (immunocompetent cells)[3,4] are the predominant cell types noted in the dental pulp prior to its the exclusion of polymorphonuclear infiltration and vascular and vascular oriented changes such as edema.[5] The presence of antibody-producing cells may be initiated and perpetuated by the recognized interaction between T (thymus dependent) and B (bursa dependent) lymphocytes.[1] The vascular changes may, in turn, be related to complement release activated by antibodies (principally IgG and to some extent IgE) or antigen-antibody complexes. With exposure of the dental pulp by caries, there is a change in the dominant cell types but not in the character of the overall inflammation.[6] The mononuclear cell infiltration persists but there is a relative increase in the number of polymorphonuclear leukocytes and macrophages. Subsequent to this there is an increase in the presence of extracellular lysosome (digestive enzymes) and the degree of tissue injury. This may cause additional tissue injury and more extensive vascular changes which increase the edema and humoral content of the pulp. This may explain why the incidence of pain increases with the severity of the pulp disease.

Severe inflammatory changes may also occur within the dental pulp in patients with extensive carious lesions who have an acquired immunity, that is an ability to produce large amounts of specific antibodies due to a previous or, in some instances, a continuous exposure to the antigen. Such a phenomenon would give rise to an accumulation of antigen-antibody complexes in the dental pulp which can in turn activate the complement system and result in the vascular and polymorphonuclear changes already noted. Such reactions have been produced experimentally in the pulps of monkeys.[7]

Reactions in the periapical tissues are most likely influenced by the same immunological phenomenon as the pulp since periapical disease, particularly periapical disease of endodontic origin, is just an extension of the condition that mediated changes within the dental pulp. There was a time when the inflammation present in the periapical tissues was thought to be a reaction of tissue to sterile pulp degradation products as much as it was a reaction to a bacterial presence. Today, however, two independent studies appear to indicate that micro-organisms, or at least a bacterial presence, may be the most significant cause. Firstly, improved methods of bacteriological culture testing have indicated that the incidence of micro-organisms within non-vital root canals is much higher than was once believed,[8] and secondly, the potential for initiating a severe or extensive inflammation in connective tissue by sterile autogenous tissue is low.[9] The type of response most frequently seen in the periapical tissues is probably a delayed type of hypersensitivity to root canal micro-organisms,[10] which may, on occasion, be modified by an immune complex or arthus type of reaction. Occasionally, patients with endodontic disease also develop clinical symptoms suggestive of an anaphylactic or immediate hypersensitivity reaction, i.e., extensive, relatively painless, hard facial swellings, characterized by rapid onset. The entities for mediating such a reaction have

been identified in inflamed periapical tissues, namely mast cells and reagin-producing plasma cells (IgE and to some extent IgG), and it would seem logical that under certain circumstances, this reagin-dependent type of immunological response can result.

Finally, although not related specifically to an immunological response, some mention should be made of the polymorphonuclear response and its relationship to the clinical symptoms of endodontic disease.

Reference has been made to the fact that polymorphonuclear leukocytes are present in areas of periapical inflammation associated with endodontic disease, and that leukocytes contain lysosomal enzymes in their cytoplasm which are not only capable of destroying and digesting bacteria but also of injuring and destroying viable body cells. In situations where there is an increase in the number of polymorphonuclear leukocytes in an area of chronic inflammation and where conditions favour their liberating their lysosomes, there is an increased probability that clinical symptoms associated with an area of inflammation will be more frequent and more severe and that an acute exacerbation of a chronic lesion can occur. It has been established that certain bacteria are more capable of initiating a polymorphonuclear response than others[11,12] and that one of these bacteria, i.e. bacteroides melaninogenicus, a gram negative rod, has been isolated from non-vital root canals.[13] It has also been established that other environmental factors[11,12] (serum components, antibodies, complements) have to be present, either singly or in concert, for these bacteria to manifest their effect. This means that under certain conditions it is possible for bacteria in the root canal to precipitate an acute exacerbation and that their presence alone at other times is not enough. Understanding this rationale may help to explain the seeming inconsistency of the reaction of periapical tissue to certain bacteria.

In conclusion, immunological phenomena seem to play an important role in endodontic disease. Because this relationship has been recently discovered, the lack of specific scientific information leaves changes in the therapeutic regimen of endodontic disease to speculation. However, the application of these basic immunological phenomena to clinical disease permits us to make certain conclusions regarding the patterns of cellular response and the types of clinical symptoms encountered.

Dr. Torneck is assistant professor, Division of Biological Sciences, Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto, Ont. M5G 1G6.

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MODIFICATION OF THE PANOREX TECHNIQUE TO DECREASE PATIENT EXPOSURE AND SIMPLIFY THE SPLICING OF EDENTULOUS FILMS

A. Ruprecht, DDS, MScD, FRCD(C)
C. M. Wang, MB(Dent)
Saskatoon

Panorex® units are a valuable diagnostic tool whose widespread use has led to modifications which allow their use when examining those patients confined to wheelchairs or smaller than the standard units can accommodate. This paper describes two further modifications which simplify the operators' task and provide increased comfort or protection for the patient.

In children, the Panorex film is usually used to show the pattern of dental development and ensure that there are no abnormalities. In the standard Panorex film of the youngster, it is not uncommon for the upper ¼ to ⅓ of the film to have an image of structures well outside the oral cavity, including the orbits and sella turcica (Fig 1). Although the radiation from the Panorex unit may be small, there is little justification for radiating the pituitary gland in order to see the development of tooth structure.

Figure 2 demonstrates how the authors modified their Panorex unit through the addition of an adjustable collimator made out of brass which fits over the position indicating device (PID) of the Panorex unit. A slide bar readily fastened into position with a single wing screw allows an infinite range of collimation and elimination of radiation to areas superior to developing dentition.

A brass tube is fitted to the outer surface of the PID and an end-plate of the same brass, with a slot slightly larger than the slot in the PID, is silver soldered to the end.

Fig 1 The broad white line across the top of the film shows that this area has not been exposed to radiation because of the lowering of the collimator into place. This in turn means that this area of the patient's face was not exposed.

This end-plate has a track to allow a 0.0625 inch thick brass bar to slide downward from the superior end of the slot to collimate the x-ray beam. A plate with a wing screw is placed over this slide bar (collimator) so that it can be held in any of an infinite number of positions (Figs 2 and 3).

The positions of the collimator bar relative to the patient in the beam are located as indicated below.

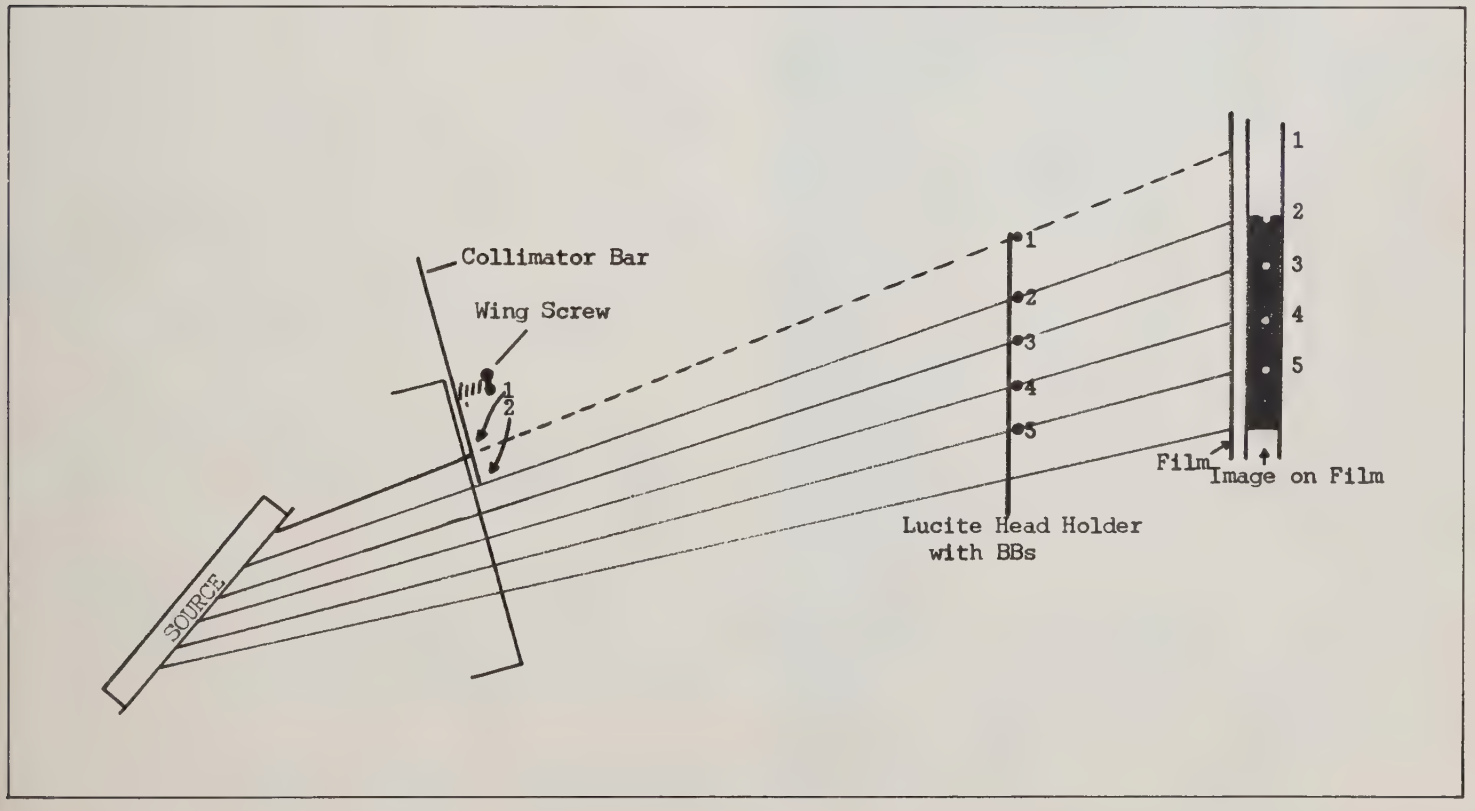
BB's are taped to one of the lucite headholders at every other indicator line. Successive films are exposed and processed, each with the collimator lowered until the images of successive BB's are cut in half on the film, showing that the upper edge of the beam is at the mid-point of the BB. Through repeating this procedure, markers are placed on the collimator slide tract to correspond to various heights on the headholders. These positions are marked on the brass housing and headholder. Acrylic lines set into the lucite are used on the headholder, since acrylic is radiolucent (Fig 3).

Thus, when the patient is seated in the Panorex, it is possible to determine at what level a line from the external auditory meatus to the lower edge of the orbit is situated relative to the beam. The collimator is adjusted appropriately, giving a result such as is seen in Figure 2. By this method, unnecessary radiation to the pituitary gland and structures superior to the developing dentition are eliminated.

A second problem that we have found is the difficulty in determining where to splice Panorex films of the edentulous patient. It is our custom to cut films in the mid-line and re-unite them in order to remove the white band and duplicated structures in the mid-line of the film, unless a lesion is found in this area. In the edentulous patient, this often requires some time to decide exactly where mid-line should be located to best compromise mid-line of maxilla and

Fig 2 The brass collimator is held in place on the position indicating device by three screws.

Fig 3 (below) The collimator is graphically shown interposed between the source and the film. Lowering of the collimator restricts the beam from the size shown by the dotted line to the next solid line down. Round circles corresponding to BB's taped to the headholder are indicated as the collimator bar is lowered to the appropriate level. The image of BB 1 is not seen, and of BB 2 is halved. These areas can be indicated on the headholder to alllow for alignment of the collimator with patient height.



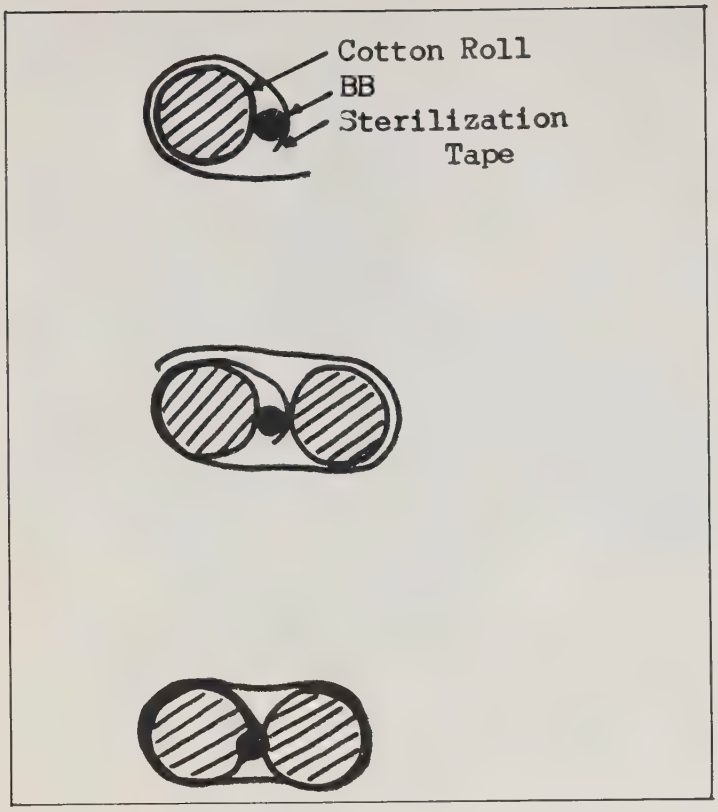


Fig 4 A BB is placed between two cotton rolls with sterilization tape as shown.

Fig 5 The cotton rolls with the BB in place are held in the patient's mouth so that the BB is situated over the middle of the edentulous ridge in mid-line.

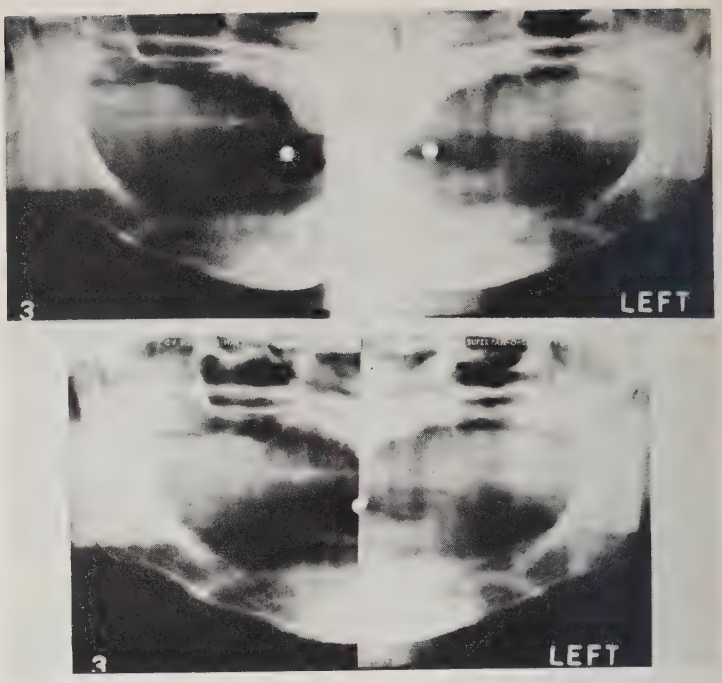


Fig 6 Panorex with the two images of BB, before and after cutting.

mandible. We have found this to be relatively easy through the use of two cotton rolls with a BB inserted between them taped together and then sterilized (Fig 4). In edentulous patients, such cotton rolls and the BB are placed in the anterior part of the mouth in the mid-line, situated over the middle of the ridge (Fig 5). When the film has been exposed and developed, the circular BB shows up as two distinct circular shadows. These may then be split exactly on center and the film re-united, giving as true a representation as is possible (Fig 6).

The use of the BB in the soft cotton is an advantage over the other customarily used indicating device, the wire in lucite. The lucite, being stiff, is often difficult for the patient to balance and, because it is a wire, gives a linear shadow not usually in a true vertical alignment, on which it is difficult to determine where the mid-line exists. Use of the BB, which is spherical and thus gives a cricular image, overcomes this problem. The cotton roll allows the patient to more readily hold the indicating device.

Both of these methods have greatly improved our ability to provide the patient with a better radiologic service.

The authors wish to express their thanks to Mrs. Marg Sarich, Medical Editor, College of Medicine, University of Saskatchewan, for reviewing this manuscript.

The collimator was fabricated in the Instrument Shop, University Hospital, Saskatoon.

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TECHNIQUE FOR REGAINING SPACE FOR MANDIBULAR SECOND BICUSPIDS

A. E. Tinginys, DDS
London, Ont.

A sectional arch technique is presented to regain lost arch length. The advantages of this technique are that it does not require specialized skills, and patient co-operation and expense are minimized.

When the second primary molars are lost prematurely, the first permanent molars frequently tip mesially, blocking out the unerupted second bicuspids. This can be a frustrating problem to correct, especially if the second molar is erupted. Up to 4 millimeters of space can be regained in an effective and efficient manner by the method described herein.

Direct technique

After adequate separation is made between the cuspid, bicuspid and molar, the teeth are banded with edgewise buccal brackets and lingual buttons. The edgewide brackets should have the necessary torque built in as this simplifies treatment. If the cuspid and first bicuspid are fully erupted, the edgewide brackets should be level during the cementation of the bands as this allows the arch wire to slip easily into the brackets. The first sectional arch wire is .016 in diameter and should be formed as shown in Figure 1(a).

After two months, a .020 arch wire is inserted with the same design as the .016. After three to four months, a .018 × .025 rectangular sectional arch is placed. This is the final arch wire and acts as the retainer while waiting for the premolars to erupt, which may take as long as six to eight months. Only a large loop is necessary in this wire.

When the archwire is tied in place with ligature wire, the force will be to tip the molar distally and intrude the cuspid and first bicuspid. The location of the second molar is important. If it is unerupted, then tipping the first molar distal may impact it. Radiographs should be taken to foresee this potential problem.

The presence of an erupted second molar is not a contraindication to treatment. A spring separator should be inserted between the first and second molars, as this prevents friction and binding and facilitates tooth movement (Fig 1[b]).

The archwire should follow the contour of the dental arch in order to prevent buccal movement of the cuspid and first bicuspid (Fig 1 [c]). The lingual buttons on the cuspid and premolar should be tied together with .010 ligature wire to provide more stability to the anchor teeth.

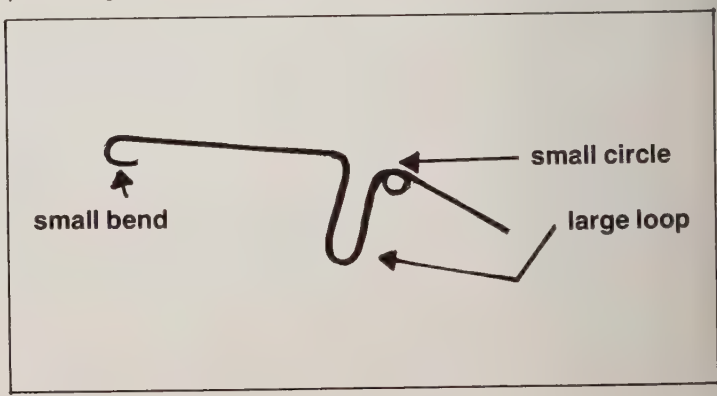
Adjustments at the circle of the arch are made at monthly intervals. If the second premolar erupts rotated, it must be banded by using lingual buttons, buccal brackets and elastic ligatures so that it can be correctly aligned (Figs. 2, 3 and 4).

Indirect technique

The teeth are separated and an alginate impression taken. An orthodontic laboratory can adapt bands with torqued edgewise brackets and lingual buttons on the study model.

Dr. Tinginys is in private practice at 466 King St., London, Ontario N6B 1T1.

Fig 1 (a) Small bend to engage gingival part of bracket, thus preventing archwire rotation.



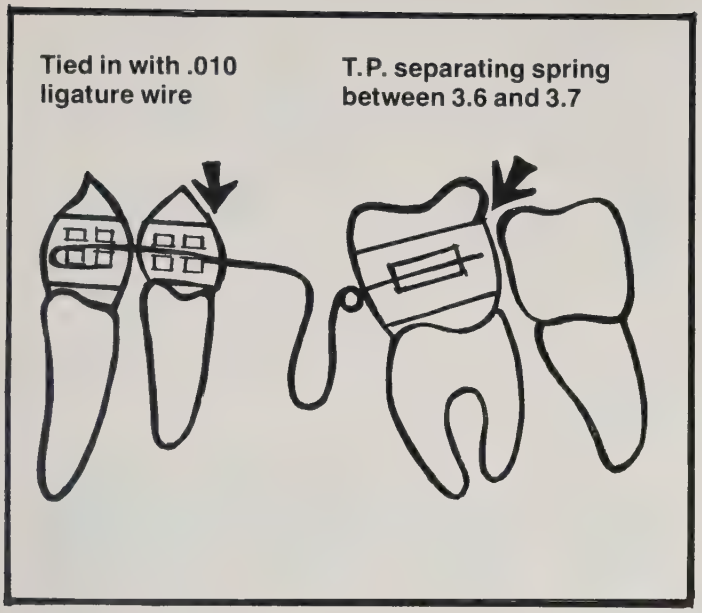


Fig 1 (b) Archwire in place.

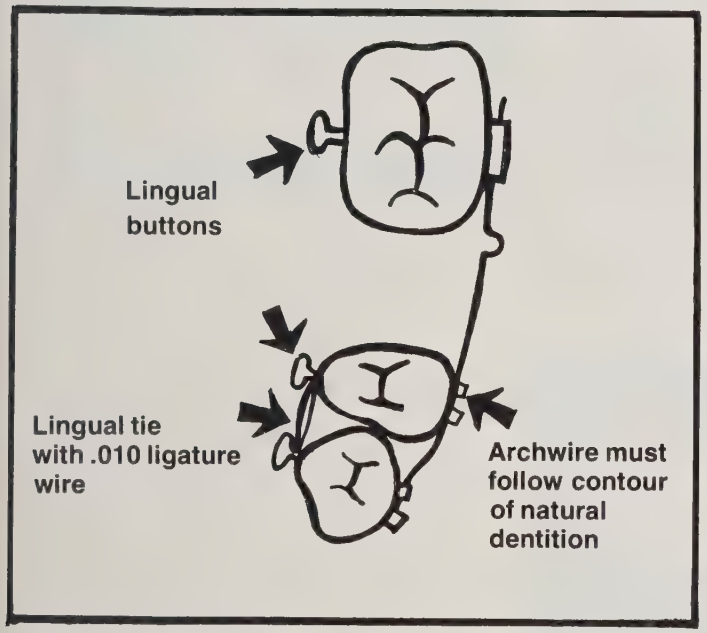


Fig 1 (c) Occlusal view.

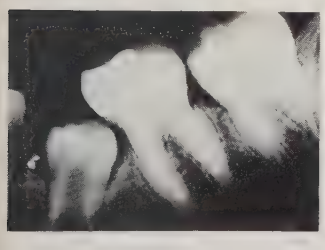
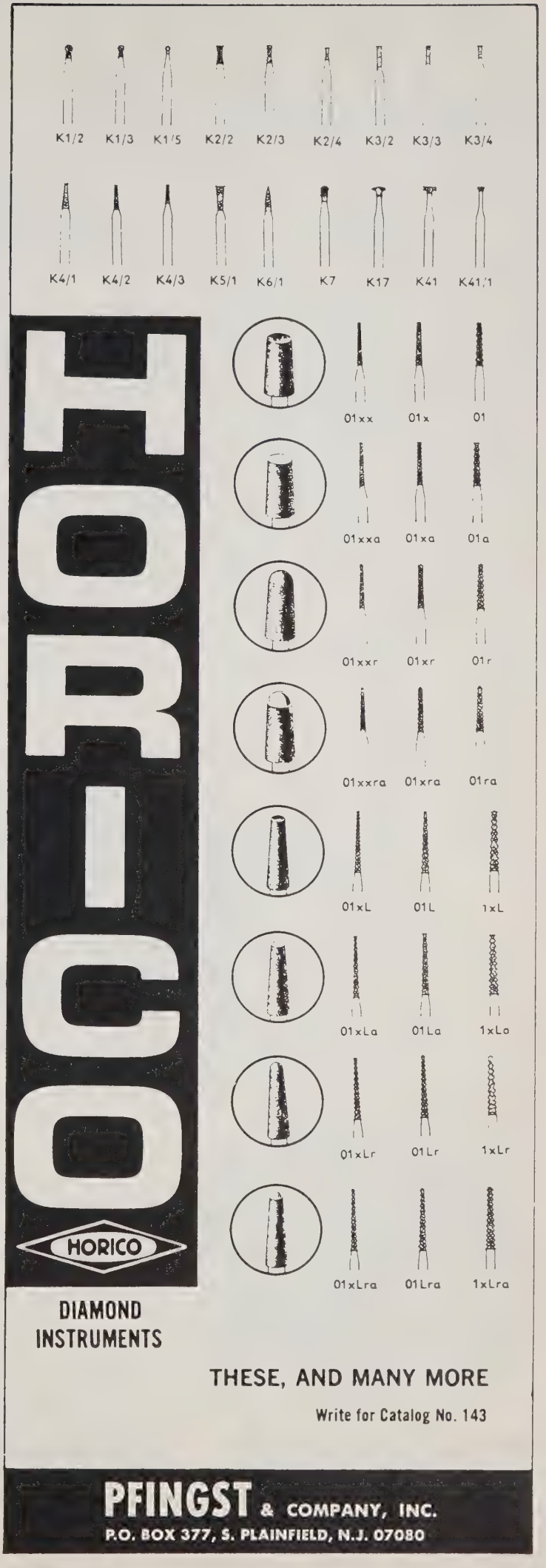


Fig 2 Radiograph illustrating mesially tipped first molar and unerupted second bicuspid.

Fig 3 Intra-oral view of bands and wire in place.

Fig 4 Radiograph of final result, 14 months after treatment commenced.



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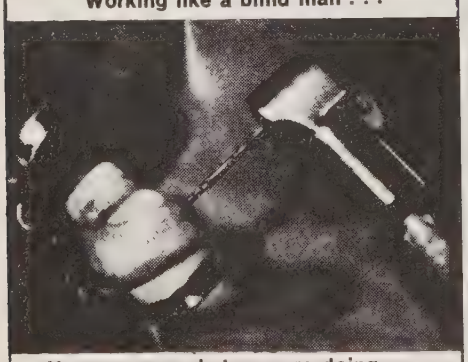

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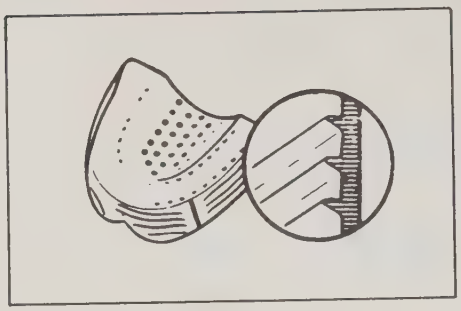

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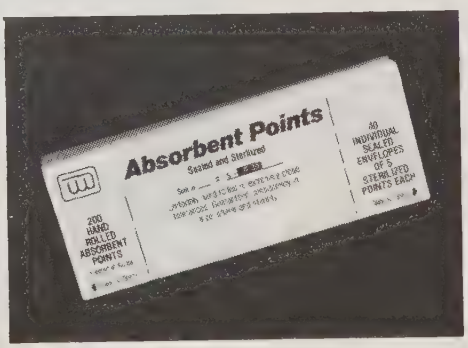

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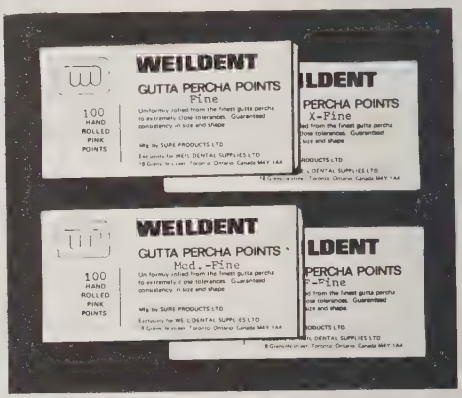

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OFFICES AND PRACTICES

BRITISH COLUMBIA — Abbotsford. Dental offices for rent in modern professional building in Abbotsford, British Columbia, adjacent to hospital. Panoramic view. Apply to: McCallum Terrace Holdings, 2151 McCallum Rd., Abbotsford, B.C., V2S 3N8.

BRITISH COLUMBIA — Chilliwack. Very desirable practice for sale: Six operatories furnished with Pelton Crane Executive modular cabinetry, in dark stained oak; four fully equipped. High gross practice. Excellent opportunity for one or two dentists. Present staff wishes to remain. Contact: Dr. Ben Vogt, 3-103 Mary Street, Chilliwack, B.C. V2P 4H3, or phone: (604) 792-8691.

BRITISH COLUMBIA — Chilliwack. In beautiful Fraser Valley, one hour from Vancouver. The busy family practice of the late Dr. R.G. Foster. Two operatories, X-ray. Hospital privileges. Must sell to settle estate. Please direct inquiries to: Mrs. M.E. Foster, #204, 299 Main Street, Chilliwack, B.C. V2P 4M9 or phone: (604) 858-4688 (home).

BRITISH COLUMBIA — Fernie. For sale on or before April 30, 1979. Family oriented practice, with 3 operatories. Details on request. Contact: Dr. R.H. Campbell, Box 130, Fernie, B.C. V0B 1M0.

BRITISH COLUMBIA — Victoria. For sale or lease: Healthy, busy, well established family practice in a very desirable location. Three operatories. Open concept. Owner returning to graduate studies. Reply to CDA Box Number 1840.

ALBERTA. For sale: Well established practice with two associates. Excellent net to gross ratio. Owner retiring. Will associate part time if desired. Reply to CDA Box Number 1839.

ALBERTA — Calgary. For sale: Well established downtown practice with 2 operatories. Must sell. Phone: (403) 284-1040 (evenings).

MANITOBA — Winnipeg. For sale: Well established practice, located in busy shopping centre. Three fully equipped operatories, laboratory, private office, waiting room, reception area with room for expansion. Owner leaving province. Please reply to CDA Box Number 1834.

New rates for classified advertising will become effective January 1, 1979. (See box above.)

EASTERN ONTARIO. For sale: Dental practice comprising of equipment for two operatories plus new building one year old. Health reason. Asking price $55,000 including all equipment, supplies and building. Bilingual preferred. Please reply to CDA Box Number 1837.

ONTARIO — Brampton. Dental laboratory space for rent in modern, medical air-conditioned building in the heart of Canada's fastest growing area. Reasonable rent. Phone: (416) 451-5802.

ONTARIO — London. Practice for sale: Busy suburban practice in rapidly expanding area. Good gross. All equipment comparatively new, office recently completely redecorated. Owner leaving area. Reply to CDA Box Number 1820.

ONTARIO — East of Toronto. Busy family practice for sale (30 minutes drive from metro center), established family practice, professionally designed, 1200 sq. ft. facility in Medical-Dental building, 3 operatories now equipped, Adec carts — Dental-Eze, room for more, hospital privileges available, above average earnings, owner returning to U.S. For additional information contact: Sorrenti Management Inc., 1287 St. Claire Avenue West, Suite 7, Toronto, Ont. M6E 1B8. Phone: (416) 651-2323.

ONTARIO — North Toronto. For sale: Excellent, long, well established, lucrative practice in medical dental building, fully air-conditioned, excellent location. Two operatories, private office, lab., waiting room, private business office. Excellent patients. Owner selling for health reasons. All inquiries treated confidentially. Reply to CDA Box Number 1841.

ONTARIO — Oshawa. Space available for rent, in new medical/dental building. High quality construction, climate controlled. High insurance area. Available January 1979. Contact: Dr. John Hudson, 167 Simcoe Street N., Oshawa, Ont. Telephone: (416) 725-3221.

ONTARIO — Willowdale. For sale: Busy 15 year old practice of the late Dr. Murray Lubroski. Densely populated suburban area in Toronto at Bathurst and Finch. For further information contact: Mrs. B. Lubroski, 53 Sawley Drive, Willowdale, Ont. M2K 2J4. Phone: (416) 222-2737.

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QUEBEC — Montreal. For sale: Established general practice, with equipment, in modern group practice, 2,500 sq. ft. Shared facilities and staff including hygienist. Excellent growth potential in pleasant community. Dentist relocating. Reply to CDA Box Number 1829, or phone: (514) 768-0855.

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ONTARIO — Toronto. Oral surgeon wanted as associate with a diverse, growing Metropolitan practice. Please send resume. Reply to: CDA Box Number 1832.

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BRITISH COLUMBIA — Victoria. For sale: 3 Cox Cordova, brown, chair-side units; 2 Assistant Units. Will pay shipping. Please contact: F.S.D.A., 1958 Fort Street, Victoria, B.C. Phone: (604) 592-2494.

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BRITISH COLUMBIA — Richmond. Wanted: Dentist(s) for Medical Building in the Vancouver area. Please contact: Dr. Clayton Ham, #204, 3811 Chatham Street, Richmond, B.C. V7E 2Z4, or phone: (604) 277-7166.

SASKATCHEWAN — Prince Albert. Excellent opportunity for younger dentist, with no financial commitment, in fully modern clinic. Hospital privileges available, also a full range of dentistry practised. Full time hygienist on staff, also certified assistant available, if desired. Fees calculated on a percentage basis, less expenses. The best of both worlds, city life and country life. Reply to: Dr. Mokleby's Dental Clinic, 27, 11th Street West, Prince Albert, Sask. S6V 3A8, or phone: (306) 764-1171.

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SASKATCHEWAN — University of Saskatchewan, College of Dentistry, Saskatoon. Applications are invited for a full-time position in Periodontics. Duties will include teaching and research. Salary and rank according to qualifications and experience. Postgraduate or graduate qualifications in Periodontics required. Letters of application and curriculum vitae should be sent to: Dr. E. R. Ambrose, Dean, College of Dentistry, University of Saskatchewan, Saskatoon, Sask. S7N 0W0. Closing date for applications is February 28, 1979.

WESTERN CANADA. Opportunity for University trained Orthodontist to associate in busy orthodontic practice. Reply to CDA Box Number 1843.

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ONTARIO — Sarnia. Oral surgeon or dentist association wanted to work in co-operation with two denture therapists. New modern office facilities. Phone: (519) 336-6580.

ONTARIO — Toronto (West). Dentists, Hygienists, Assistants and Receptionists required for a new ultra-modern dental clinic, scheduled to open in West Toronto in October 1978. All applicants must be ambitious, quality conscious and preventive oriented. This 3,000 sq. ft. clinic features 8 fully equipped operatories, panelipse, nitrous oxide, brand new equipment, as well as the assistance of hygienists and auxiliary personnel, all encompassed in relaxed, enjoyable surroundings. A large patient volume ensures excellent remuneration for any ambitious individual. Please send resume to CDA Box Number 1823.

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The Province of British Columbia

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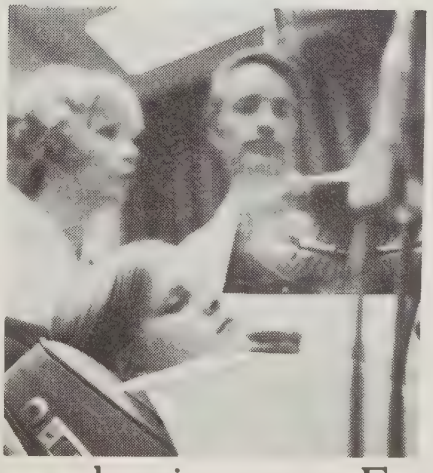

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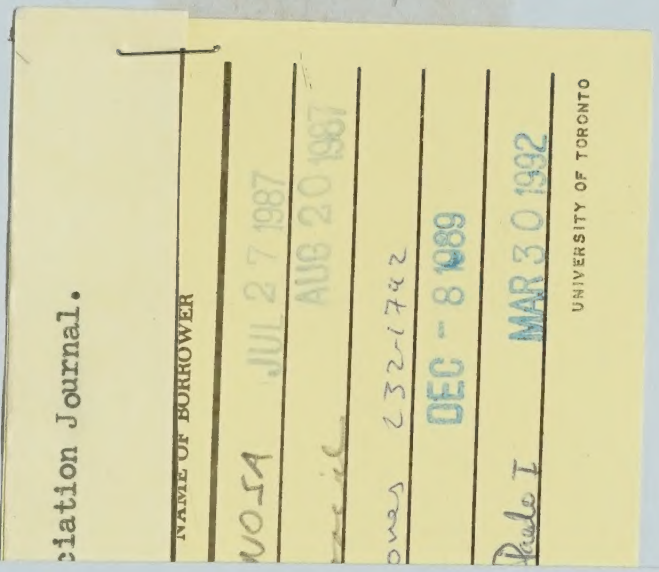

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